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Rethinking the Role of Community Gardening in Localizing Post-Oil Suburbia: A Proposal for Willowdale Community Garden in Cherry Hill, NJ

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Rethinking the Role of Community Gardening in Localizing Post-Oil Suburbia:

A Proposal for Willowdale Community Garden in Cherry Hill, NJ

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"Those now being educated will have to do what we, the present generation, have been unable or unwilling to do: stabilize world population, reduce the emissions of greenhouse gases which threaten to change the climate, perhaps disastrously; protect biological diversity, reverse the destruction of forests everywhere, and conserve soils. They must learn how to use energy and materials with great efficiency. They must learn how to utilize solar energy in all forms. They must rebuild the economy in order to eliminate waste and pollution. They must learn how to manage renewable resources for the long run. They must begin the great work of repairing, as much as possible, the damage done to the earth in the past 200 years of industrialization. And they must do all of this while they reduce worsening social and racial inequality.

No generation has ever faced a more daunting agenda." –David Orr

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ABSTRACT

Today, nearly half of American citizens live in suburban communities (U.S. Census, 2010). Over the last century, these communities have become dangerously dependent on a steady supply of fossil fuels for the continuation of their current food, energy, and transportation systems. While coal and natural gas supplies remain relatively high, natural resource experts agree that global oil supply will fall consistently in coming years. As oil supplies decrease, suburban communities that currently depend on petroleum will therefore have to adapt to live with a decreasing supply of this fossil fuel. Despite these projections, few communities are currently planning for life after oil.

This thesis reviews the growing movement of communities optimistically responding to the challenges presented by the peak oil scenario. These places that are transitioning to locally supporting community systems are demonstrating that in addition to increasing an area's resilience against future petroleum challenges, local initiatives also increase the well-being of communities. The following thesis applies the concept of localizing community to the context of suburban townships. After reviewing the consumer trends and development intentions that led to the creation of suburban communities in America, it analyzes the crossroads of development patterns currently facing aging suburban places today. It suggests that for several short and long-term benefits, suburban communities should adopt efficient development patterns that cater to the pedestrians by creating forums for civic engagement. This shift in development approach will reverse a long suburban tradition of designing infrastructure around car-culture and oil dependency.

After establishing the argument for why suburban communities must begin thinking about transitioning away from oil, this thesis narrows its focus on envisioning a post-oil food

system in my home suburban township, Cherry Hill, NJ. After presenting an analysis of Cherry Hill's rich landscape and cultural narratives, it applies the solution-oriented approaches of transition town, permaculture, and place-based education to the context of Cherry Hill's Willowdale neighborhood. Translating a global awareness of climate change and peak oil into local action, this thesis culminates with a proposal for Willowdale Community Garden. Combining private garden plots with a public permaculture learning landscapes, the design proposal for Willowdale Community Garden outlines the creation of a much-needed public garden space for the residents of Cherry Hill to experiment with food production. The implementation of this garden will also support the rediscovery of living well in the township's suburban landscape. By doing so, it will compliment and fortify a greater sustainability movement already spreading throughout Cherry Hill Township.

KEY WORDS

Cherry Hill, NJ, climate change, community farm, community garden, forest garden, future communities, future suburbia, key-hole garden, local food systems, nature connection, peak oil, permaculture, place-based education, retrofitting suburbia, suburbia, swales, transition towns, Willowdale Community Garden

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Like any sustainability initiative, this thesis has required the help and dedication of many inspiring people. People who have already done the work that I am trying to accomplish in my life. People who understand the necessary change communities will have to undergo in order to function smartly and soundly in future decades.

First and foremost, I have been lucky enough to work with Lori Braunstein. As the founder of Sustainable Cherry Hill, Lori has led the way for young people like myself,

stimulating a locally focused paradigm and environmental awareness in Cherry Hill, NJ. I thank Lori for helping to initiate a sustainable revolution in Cherry Hill. I am indebted to her for introducing and "e-troducing" me to dozens of individuals from Cherry Hill and elsewhere working on similar sustainability initiatives. These individuals include Cherry Hill Township planner, Natalie Barney, Cherry Hill High School East's environmental science teacher, Gina Oh, and New Jersey state climatologist, David Robinson. I am grateful to Lori for meeting multiple times over winter break to discuss Willowdale Community Garden and the future of Cherry Hill.

The next big thank you is directed to Lori's friend, Natalie Barney. As the township land-use planner, Natalie has helped me better understand the land-use planning process that is required to support township community garden projects. Natalie has also helped me by accessing her super-nifty planning resources to research and analyze my proposed garden site. This research has allowed me to better understand my site specificities while also lending that validity to my project proposal.

Then comes Gina Oh, environmental studies teacher and sustainability ally in the Cherry Hill school district. Mrs. Oh has offered multiple school lunch breaks to discuss the importance of strengthening environmental and place-based education initiatives for students. She has guided me through the halls of my alma mater, Cherry Hill East, to show me a renovated greenhouse garden and added student compost bins. She has also granted me to opportunity to speak with her environmental science classes, an experience which allowed me to better understand student interests and environmental passions.

I need to thank Bill and Inca Russell for their inspirational organic home garden in Cherry Hill. The dedication of this seventy-year old couple to circumvent genetically modified,

conventional produce at the grocery store displays their dedication to rethinking the potential of the suburban home property. Their story has made it possible to believe that year-round, local food production is possible in Cherry Hill.

As an inspiration from outside of Cherry Hill, I need to thank Lisa Depiano and Montview Farms for being the first human-powered, community farm in the northeast. Their success in creating an organic permaculture landscape in the midst of suburbia has helped to inspire my vision of Willowdale Community Garden. *Montview Farms' Case Study Report*, (www.montviewfarm.org, ND) has also offered an in-depth report for how individuals and communities should design their own community gardens or farms.

To my friends for constantly wondering why I chose to spend an entire year writing and thinking about future suburbia. These people I love have forced me to explain myself and through these explanations, they have allowed me to better understand what it is I am trying to accomplish. I have been amazed how many of my friends have expressed genuine enthusiasm when learning about the topics of my thesis. Knowing that those I love share similar opinions for how suburban communities should develop has been a reassuring reminder that my thesis and garden proposal is needed in places like Cherry Hill.

Lastly, I need to thank my parents for reminding me that suburban Cherry Hill is a much different community than my current home in Burlington. My parents have helped to strengthen the content and voice of my thesis. Their constant questioning and inquiries have remind me that climate change and peak oil are two misunderstood topics for most families and individuals living outside of the Rubenstein School's "environmental bubble". Most importantly, my parents have been my number one fans, supporting and believing in me throughout my thesis process and entire collegiate career.

INTRODUCTION

Scope, Background, and Significance of the Problem:

This thesis addresses the overall disconnect that exists between suburban communities and their food systems. Most food shoppers today are unaware that the average food travels 1,500 to 2,500 food miles (Pirog, 2003) to reach the grocery store. Food shoppers often do not know their food's origin, growing methods, or farmers. Shoppers also fail to realize that the production of their food is heavily dependent on petroleum based fertilizers and pesticides. As petroleum supplies dwindle, future suburban communities will be forced to relearn how to grow their own food. This thesis details the significance of current petroleum dependency in suburban communities. It examines this problem first from a national scale and then at the community level, culminating with a proposal for the design and implementation of Willowdale Community Garden. This garden proposal is intended to address the challenge of transitioning away from oil-dependent food systems.

In order to persuade neighbors to consider participating in community gardening, it is important to outline the potential benefits of a community garden project. Case study garden examples from Northampton, MA and Cherry Hill, NJ will help to persuade residents and township planners to grant approval for the creation of Willowdale Community Garden. As suburban municipalities across the country are looking for methods to concentrate sprawling suburban communities, this thesis presents community gardening as an action-oriented springboard for neighborhood-supporting development trends.

Purpose of the Study

This thesis is my attempt to interpret the global phenomena of climate change and peak oil within the framework of my hometown, Cherry Hill, NJ. In it, I suggest that the creation of a permaculture-inspired community garden will help to facilitate the emergence of a locally rooted food movement within the community and schools of the Willowdale neighborhood.

Conceptual Framework

Conceptualizing how Cherry Hill's habits affect global systems outside of the township is integral to this thesis. As I have focused on creating an alternative, environmental friendly food system the following questions have emerged: What is the most effective way for residents to reconsider their connection to current food systems? How can a township like Cherry Hill transition to a locally-based food economy? And what would be the incentives or market forces that stimulate such a township-wide transition? Today, local and organically grown foods generally cost more than conventional super-market bought groceries (Seyfang, 2006). Therefore, persuading Cherry Hill residents to consider the proposal of a community garden prior to a market-driven food revolution requires a well-articulated argument that supports both short and long-term personal and community benefits.

Project Task

The project task for this thesis is twofold. The first task examines the importance of initiating a transition away from fossil fuel food systems in suburbia. The thesis explores the connections between residents, community, and potential food-producing sites in the surrounding landscape. It ultimately links me personally with Cherry Hill's burgeoning sustainable transition, identifying how my personal passion for community-based design work may be best applied to stimulate a local movement in Cherry Hill's Willowdale community. I argue that community

gardening can maximize positive momentum for the emergence of a community-supported food system.

The second project task reviews the trend of Cherry Hill's community and landscape narrative leading into post-oil culture. For most our existence on Earth, survival of homo sapiens has depended on what Robert Thayer Jr. describes as *social cooperation in place* (Thayer Jr., 70). Only recently has the theme of cooperation become optional for bands or neighborhoods of people. The second project task examines the long heritage of community cooperation existing amongst the communities who lived on Cherry Hill's landscape prior to suburban development. In examining these human stories, this thesis examines that role that community gardening will play in reintroducing life-place culture (Thayer Jr., 2003) in Cherry Hill. In *Inhabiting Place,* Thayer Jr. describes life-place culture as "the rediscovery of a way to live well, with grace and permanence, in place."(80) Future generations living in the post-oil era will benefit from practicing life-place culture. Therefore, integrating this culture into present-day communities such as the Willowdale neighborhood of Cherry Hill will serve the best interest of future generations living in Cherry Hill.

Theoretical Assumptions

This thesis suggests that the most effective approach for personal well-being is a lifestyle that maximizes social good (Kaplan, 2008). This assumption, presented in *Enabling the Best in People* (2008), proposes that residents of a community are happiest when they create healthy connections with their community and surrounding natural landscape (234). Placing community and natural health at the core of an individual's decision-making process is required to develop beneficial township-wide sustainability agendas (De Young, 2012). In this thesis, I imply that communities that produce and support local foods are more inclined to consider their connection

peak oil and climate change (Duany, 2008). Since community gardening offers space for residents to both grow their own food and connect with other gardeners, I suggest that these spaces will play an essential role in empowering the transformation of neighborhoods into emerging, food-producing, localities.

Establishing a garden with private garden plots will allow residents to grow their own food in an age where consumers can still shop at the grocery store. This provides an intentionally slow transition opportunity, allowing residents to experiment with local food creation while continuing to shop at the supermarket. It is important to recognize that Cherry Hill's food systems will not change over night. However, the longer the township stalls on creating food producing landscapes, the greater its vulnerability will be to future food and petroleum-related uncertainties. Since the majority of the township is subdivided into single-family home properties, suburban communities like Cherry Hill have the potential of growing the majority of their own food by actualizing the food-growing potential of their residential lawns (Northampton Report, 2012).

The first step in initiating such a township-wide food campaign is establishing additional community gardens that educate and empower individuals on how to grow their own food. This thesis focuses on initiating this first step. Before doing so, it examines the rise of suburban communities across America. It defines this development trend as a catalyst for climate change. After outlining the context of the current suburban scenario, it then lays out the community garden proposal as a necessary community change agent.

LITERATURE REVIEW

Part 1 - Understanding the Basics

Humans have entered into a new geological period known as *The Anthropocene Age*[1]. In this age, climate scientists, environmental activists, and forward-thinking community leaders agree that American communities must begin addressing today, the climate conditions expected for future decades. These experts agree that communities currently implementing climate action plans into their township agendas are more prepared to meet the climate and resource challenges of coming decades (Hopkins, 2006). How communities will uniquely adapt to fit the needs of their communities has become one of the most important questions posed in human history (Heniberg, 2011). This literature review examines the continuing evolution of the American suburb. It analyzes the motives that have created current suburbia, studying suburbia's inevitable evolution into climate and resource resilient localities.

One reason Americans have delayed greenhouse gas mitigation is because of the misleading complexities surrounding the formidable issue of climate change. To help combat climate uncertainties, international climate science committees have validated expected atmospheric projections. Founded in 1988, The International Panel on Climate Change (IPCC) has become the leader in informing governments and communities on climate related, peer-reviewed projections. Published in 2007, IPCC's most recent findings note macro level trends in global warming and changing weather patterns. Working Group I (IPCC, 2007) reports that eleven of the hottest years in recorded history have occurred over the last twelve years. The

[1] Amy Seidl refers to the "*Anthropocene Age"* in *Finding Higher Ground.* The term was first used by ecologist Eugene Stoermer and has been popularized by atmospheric chemist Paul Crutzen. It verifies that we are now living in a man-induced, environmentally altered world.

group also points to rising sea-level temperatures[2] that have led to altered global weather patterns (IPCC, 2010). These IPCC findings are supported by other scientific studies focusing on global trends. The United States Global Research Programs summarizes that *climate change* is already underway in the United States and is projected to worsen over future decades (*Our Changing Planet*, 2011). The study concludes that future changes will depend on the current choices made by communities, industries, and governments.

While these findings focus on macro-level effects, various other research institutions across the country help to provide regional assessments for climate predictions. Climate studies conducted by Penn State University and other regional organizations suggest similar predictions to the IPCC 2007 report. Penn State's *Preliminary findings from the Mid-Atlantic Regional (MAR) Assessment*, suggests that overall, the Mid-Atlantic Region can anticipate warmer and wetter conditions with more climate variability over the next thirty to one hundred years (Fischer, 2010). The study also details that storm surges will be exacerbated by the effects of sea-level rise from climate change**,** an effect that will cause coastal communities to seek refuge in inland communities like Cherry Hill, NJ. The Penn State study concludes by urging regional citizens and decision makers to use climate change predictions to influence decisions-making processes today.

New Jersey state climatologist, David Robinson also provides similar predictions for the Mid-Atlantic Region. Robinson has confirmed that climate projections specific for the state of New Jersey do not currently exist. Robinson recognizes the general nature of climate prediction reports. Despite the desires of community planners to track down the most precise projections, Robinson explains that current science technology is not able to predict how "temperatures will

[2] Average temperature rise of 0.2 degrees Celsius per decade (IPCC, 2010).

rise 4.6 degrees by 2100." Instead, accurate studies point to more general predictions like those published by Penn State. That said, Robinson advises his students against "over-generalizing report findings." As a professor at Rutgers, Robinson expects his students to understand the range of implications embedded in climate predictions. If a report suggests that precipitation will increase for a region, "it may mean that the winter months in this region receive a substantial influx in precipitation while the summer months experiences a extended periods of intense drought."(Robinson, 2012) Robinson suggests that right now, "We really do not know what is going to happen to our local climates." The most important thing for communities to do is to recognize that climate is changing.

Climate reports also urge regions and communities to mitigate greenhouse gas emissions. Prior to the Industrial Revolution, carbon dioxide levels existed around 280 parts per million (ppm) in the atmosphere. Over the last two centuries, this concentration has nearly doubled and currently stands at just under 380 ppm (http://co2now.org/). In the 2007 report, the IPCC notes that a worst case climate scenario will unfold if carbon dioxide levels reach 450 parts per million (IPCC, 2007). At this concentration, the Earth's atmosphere would cross a permanent molecular tipping point. Such a dense carbon dioxide level would trap enough additional solar radiation to raise global temperatures an additional three degrees Celsius. Climatologists expect that this scenario will secure "climate chaos" (www.stopclimatechaos.org), creating a world nearly impossible for humans to inhabit. Preventing climate chaos means taking climate action in communities today.

While it is important to recognize the worst-case scenario, grim future realities are difficult for humans to interpret. When faced with the potentials of doomsday scenarios, many individuals and communities choose to ignore the reality of climate change. This is especially

true for Americans and other westernized countries who are afraid of abandoning the leisures of cheap energy society (Dadely, 2012, p.13). In *The End of Nature,* Bill McKibben presents a sobering depiction of potential global effects following climate chaos. His book describes a potential four to seven foot sea level rise for the year 2100. He also notes that the creation of millions of coastal climate refugees will result from such a drastic sea level rise. While it is important to understand the implications of unchecked climate change, texts such as *The End of Nature* can lead readers to paralyzing anxieties and climate inaction. It is important for individuals suffering from climate anxiety to join support groups that teach individuals how to harness the urgency of climate change into encouragement for local change (Hopkins, 2008).

Other citizens choose to ignore the environmental crisis because they view today's culture as the pinnacle of human progress. In *Doom, Gloom and Empty Tombs: Climate Change and Fear,* Byron Smith writes that climate change is an "unforeseen and unintended by-product of success." The last two hundred years have brought forth a dramatic rise in prosperity and average quality of life. Most people find it difficult to imagine localized economies providing enough well paying jobs to satisfy employment need. Smith points to the American economy's dangerous dependency on fossil fuels as the culprit impeding sustainable development. Until alternatives to fossil fuel-dependent systems are created and made preferable for consumers, Smith believes that people will ignore their fears about climate change. In doing so, they will ensure the continuation of environmentally degrading habits (IPCC, 2007).

In *Finding Higher Ground*, Amy Seidl displays her uncanny ability to turn fear into motivation for creating a better world. For Seidl, the challenge of re-designing the present to meet future needs stems from a desire to live well in place. The author recommends ways for suburban households to mitigate their emissions while also improving their livelihoods. Seidl

details the joys of home gardening, experiencing domestic energy independence, and establishing strong local community connections. Unlike *The End of Nature, Finding Higher Ground* examines how fossil fuel mitigation can lead to improved lifestyles for individuals and communities living during the energy descent culture (Hopkins, 2008)

The Implications of Peak Oil in Suburbia

"We in the first world have participated in a binge, enjoying a half-century of prosperity and ease." Bill McKibben

The reality that fossil fuel supplies are diminishing each year is a blessing in disguise for global greenhouse gas mitigation efforts. The term *peak oil* suggests that the maximum amount of global oil supply available for market consumption will one-day peak. After this peak, global oil supply will consistently decrease until the cost of oil extraction exceeds the price consumers are willing to pay. In recent years, debate has emerged over the predicted year for peak oil. In his book, *The End of Growth,* energy expert Richard Heinberg, offers ten leading predictions for when peak oil will occur. These predictions place the peak year within the 2005-2015 range (Heinberg, 2011). Other sources suggest more conservative predictions, extending this range to 2035 (Morris, 2005). Whether or not global oil supply has peaked already, oil supply is inherently finite and has already begun to increase in price as a result of rising demand and stagnant global supply.

The *Hirsch Report,* published by the US Department of Energy in 2005, outlines the implications of peak oil for the American economic, energy, transportation, and food systems. The report, also known as, *Peaking of World Oil Production: Impacts Mitigations and Risk Management,* suggests that decades will be required to re-engineer modern societal systems to function independent of declining oil supplies. The study summarizes that communities and

regions should begin planning for post-fossil fuel systems now before oil prices spike following an erratic reduction in global oil market supply (Figure 1).

Figure 1 – *The Hubbert Curve*

[Image removed from digital version; available in hard copy version housed in the Environmental Program office]

Unfortunately, most communities are failing to plan for a future without oil. This lack of foresight is particular troublesome for suburban townships that depend on oil for the continuation of nearly every community system. Food systems that feed suburban communities rely on petroleum for the growth, harvest and transportation of its market goods. The economy relies on petroleum to transport globally manufactured items as well as employees. And suburban residents depend on petroleum to fuel the dominant car culture of their communities. Take oil out of any of these sectors and the precarious house of cards called suburbia begins to crumble. But before addressing how suburbia will overcome the challenge of transitioning to post-oil communities, it is important to understand the motives that have supported its creation and pervasive expansion.

Part 2 - The Rising American Suburb

"Capitalism is destined to destroy what it previously has built." Robert Beauregard

Following World War II, the United States became the most powerful nation in the world (Beauregard, 2006). For Americans during this time, a rise in affluence led to a desire to "have it all."(8) Robert Beauregard writes in, *When America Became Suburbs,* that following the war, young couples gained the confidence to move out of the city to the newly emerging suburbs. Suburbia had existed prior to the war in a more contained fashion. Older suburban communities

emerged in the late 19th and early 20th century as a rising middle class desired to move away from the working districts of the deteriorating city core. Original suburban neighborhoods emerged as early as the 1850's. Suburban communities such as Llewellyn Park in Orange, NJ (1853), Glendale located north of Cincinnati (1850's), and Riverside, Illinois, positioned north of Chicago (1869), surrounded green spaces and transportation hubs leading back to the city (Morris, 2005). In the 1940's, the second wave of suburbia emerged, extending outwards from the original suburban ring of development. This new phase was not contained by urban transportation infrastructure linking back to the city. The ensuing car-friendly development patterns would reflect the imperialistic prowess of post-war America, conquering agricultural landscapes in order to satisfy rising consumptive expectations of a jubilant middle-class (Beauregard, 2006).

Thus, suburban sprawl was born. Between 1945 and 1970, more than 25 million new suburban homes were built (Morris, 2005). During this time, the number of new housing starts per year peaked in 1950 at 1,952,000 (Teaford, 2008). After 1970, inefficient and energy dependent development continued across the country despite an energy crises and a changing consumer consciousness. In *The American Suburb* (Teaford, 2008), the term *boomburb* is introduced to describe an emerging class of giant suburbs that epitomize unchecked sprawl in twenty first century. While these suburbs exceed 100,000 residents, they are often not the major city in their region. Additionally, boomburbs need to have maintained double-digit population growth over recent decades."(Teaford, 2008) In 2003, fifty-three boomburbs were identified in the U.S.

In examining suburbia, it is important to recognize that market demand has not created suburban sprawl (Morris, 2005). Rather, speculative building has led to a surplus of suburban

housing options for home shoppers to consider. Despite a growing trend to live in well-designed communities, the supply of alternative housing forms and efficiently planned communities remains low in America (Morris, 2005). If housing reflected the true desires of the conscious consumer, communities located outside of the city would imitate the design principles of the urban core. Suburban planners are beginning to design communities holistically. Among the new schools of suburban thought are smart growth and new urbanism. Within these design approaches, pedestrians are able to walk conveniently to commercial downtowns, bike lanes and bus routes exist, and plentiful green spaces exist for public enjoyment (Morris, 2006).

In *It's a Sprawl World,* Douglas E. Morris connects the rising undesirability of suburbia to a consumer base learning that smoking is unhealthy. He writes, "Smokers used to think that smoking would bring them happiness. When we learned that it brought cancer and other side effects instead, our society created a non-smoking culture." Americans are finally realizing that suburbia mentally and physically unhealthy. As this consciousness spreads, an anti-sprawl and anti-car culture is emerging to demand the creation of genuine communities (Beauregard, 2006).

The Cost of Suburbia

"Growth for the sake of growth is the ideology of the cancer cell."- Edward Abbey

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Research examining the "true cost of suburbia" reveals the unequally distributed cost inefficiencies resulting from sprawl development. In *It's a Sprawl World,* Morris details a study by the *American Farmland Trust*, which states, "For every tax dollar collected from a newly developed suburban residential property, about $1.25 in spent providing new services and suburban infrastructure." That amounts to a theoretical "upfront loss of $0.25 cents for every dollar spent" in creating new suburban development (Morris, 2005). Morris continues, "New

classrooms are estimated to cost $90,000 while new sewer lines cost around $200,000 per line. And road development is expected to cost four million dollars for every new mile of single lane road."(Morris, 2005) Morris suggests that with the creation of suburban infrastructure to support new community development, speculative housing developers essentially enjoy a free ride. The subsidized low price of new development is often paid for by existing township residents through tax increases. Preventing inefficient sprawl often requires townships to redistribute infrastructural costs so that housing developers pay for the true cost of supplying additional community infrastructure.

The topic of climate change is also being used to motivate communities away from sprawling development patterns. In *Addressing Place in Climate Change,* Sarah E. Knuth describes her experience convincing Montgomery County, PA to adopt a climate action plan by implementing efficient building and development practices. Knuth suggests that the present strip-mall-supporting infrastructure of Montgomery County will prove increasingly more expensive to maintain in the future. Since 2006, Knuth has been working to redesign Montgomery County through the application of urban design principles. These initiatives are helping the county to decrease both infrastructural investment and greenhouse gas emissions.

From Sustainability to Resiliency

"When going back makes sense, you're going ahead" – Wendell Berry

The ecological term *resiliency* describes the ability of ecological communities to sustain system shocks. Complex ecosystems have evolved to champion species diversity and resource redundancy. In the event that a complex old-growth-forest experiences a drought, specific species within the ecosystem will survive the dry conditions and will carry forth the ecosystem's ecological services. The success of these niche species will help to sustain the shocked

ecosystem until the drought subsides and homeostasis returns to the network of organisms. However, forests that have been altered by human disturbances are often less capable of effectively sustaining system shocks (Adger, 2012). In *Social and Ecological Resilience,* Adger suggests that places which lack diverse systems also lack resiliency to community shocks.

As greenhouse gas emissions increase and the projection of intensified climate variability strengthens, the need for creating resilient community systems increases. The *World Carbon Report* proposed that in 2010, carbon emission levels continued to rise when they should have been falling to combat the greenhouse effect. “In 2010, a record 30.6 gigatones of carbon dioxide poured into the atmosphere, a rise of 1.6 Gt on the previous year.”(Tanaka, 2010) While it is important to plug away at carbon reductions, the habits of western countries have failed to change in ways that prevent future climate change from intensifying. Resiliency efforts focus on how communities will learn to live in the extreme climate shifts that should be expected in coming years (Tanaka, 2010). If suburban communities expect to function as healthy functioning places in the future, community planners, leaders, and members need to implement a diverse array of alternative systems within the existing infrastructure of at-risk places.

Amy Seidl writes, “We are all, consciously and unconsciously working to reduce our vulnerability.”(Seidl, 2011) If communities are to mimic the efficiency of healthy forest ecosystems, they need to relearn how to produce their resource needs locally. When power surges cause whole regions to lose electricity, households with solar panels continue to enjoy electricity. Similarly, when the cost of food rises or in an event that food fails to reach markets, households and communities that grow their own food are better prepared to overcome short-term food challenges. Literature examining community resiliency does not suggest that suburban residents should stop shopping at the supermarket (Lyson, 2002). Instead, author such as

Beauregard, Morris, Teaford and Seidl agree that communities should begin establishing connections with local farmers and energy production in order to decrease dependence on imported community supporting resources.

Resiliency shares many similarities with the term, sufficiency. Sufficiency aims to limit our consumptive behavior. J. Juuls writes in *One Planet* that sufficiency is "knowing when enough is enough". It means being content with what is adequate by requiring less money and resources to satisfy one's needs. Sufficiency offers a departure from *conspicuous consumption* (Veblen, 1899) by rejecting growth for the sake of growth. Seidl suggests that building a personal connection to food often leads to an increased respect for local farmers supplying communities with healthy produce, a theory shared by environmental educators, Smith and Sobel. (Smith and Sobel, 2010)

Similarly, building a personal connection with alternative energy often leads to household energy reduction (Heinberg, 2011). The world's energy demand is set to double by 2050 and triple by 2100. (Seidl, 2011) Communities worldwide will need to provide energy not only for themselves but also for two billion people that do not currently have energy and three billion who are not currently born (Kunstler, 2012). While this thesis focuses on fostering food security, it is important to remember that current food systems require large amounts of energy to reach market. Suburban communities across America need to relearn how to produce their own needs locally. Thankfully, this local transition to has already begun.

Part 3 – The Great Transition of Suburbia

"Town life nourishes and perfects all the more civilized elements in man." – Oscar Wilde

Part three of this literature review delves into *permaculture* and *transition town initiatives*, two solution-based movements currently being applied communities around the world (Hopkins, 2011). Suburbia's "great transformation" (Morris, 2006) will require many solution approaches applied at national, regional and local levels. By no means does this section attempt to solve all of suburbia's problems. Rather, it reviews literature outlining potential action-oriented approaches that suburban communities like Cherry Hill, NJ may adopt as the enter energy descent culture (Hopkins, 2011).

The Transition Movement

The transition movement emerged out of the question, "What happens when a community plans twenty years ahead for life after cheap oil*?"*(Hopkins, 2008) The movement focuses on addressing the triple threat of peak oil, climate change and a failing global economy (Heinberg, 2011). Emerging from this design question and focus are the following Transition Movement Principles (Figure 2) outlined in Hopkins' *Transition Handbook* (Hopkins, 2012)

A handful of citizen groups across the country have begun to organize and apply the transition principles to their suburban communities. As transition movements strengthen, other residents are realizing that individuals share similar feelings of discontent with the way that their townships are progressing. These members are translating feelings of frustration into motivation for creating and empowering, forward thinking, community-based action.

Figure 2 - *Transition Movement Principles*

- Climate change and peak oil require urgent action
- Life with less energy is inevitable. It is better to plan for it than to be taken by surprise.
- Industrial society has lost the resilience to be able to cope with energy shocks.
- We have to act together, now.
- Infinite growth within a finite system (such as planet Earth) is impossible.
- We demonstrated great ingenuity and intelligence as we raced up the energy curve over the last 150 years. There's no reason why we can't use those qualities, and more, as we negotiate our way up from the depths back towards the sun and air.
- If we plan and act early enough, and use our creativity and cooperation to unleash the genius within our local communities, we can build a future far more fulfilling and enriching, more connected to and gentler on the Earth, than the life we have today.

Founded in 2007, the Transition Town Movement has spread virally throughout the world. There are now 360 transition towns in over 31 countries including 85 in over 29 U.S. states (Hemminger, 2011, 28-33). On the Transition Town website, Rob Hopkins explains, "Transition is spreading like wild fire. It is the fastest growing environmental movement in the global north." Hopkins continues, "It is not surprising that communities across the country are increasing their resilience against the impending crash of global systems." By re-skilling[3] themselves in the trades of their grandparents and ancestors, neighbors and neighborhoods are relearning how to work collectively in creating fossil fuel independent alternatives. In doing so, they are helping to revive the most important tool for any sustainable initiative, collective community action.

Transition to Permaculture

Returning to fossil fuel-free food production requires communities to produce food at small scales. For accomplishing this feat, communities are turning to *permaculture.* Permaculture

[3] Rob Hopkins coins the term *"reskilling"* in The Transition Handbook. This term is defined as *"Re-learning the skills that our grandparents took for granted."*

is a style of agriculture and culture that has been described as "the science of maximizing beneficial relationships."(Mollison, 1991) Co-founded by David Holmgren and Bill Mollison in the 1970's, this style of agriculture also focuses on ecological place-based solutions. Bill Mollison's *Introduction to Permaculture,* defines the permaculture approach as "using the inherent qualities of plants and animals combined with the natural characteristics of landscapes and structures to produce life-supporting systems for city and country, using the smallest practical area possible."(Mollison, 1991) Japanese permaculturist, Masanobu Fukuoka, describes in his book, *The One Straw Revolution,* that the term is a "philosophy of working with, rather than against nature." (Fukuoka, 1978) Similarly, British permaculture expert, Patrick Whitefield, explains in, *The Earth Care Manual,* that permaculture means "taking natural ecosystems as the model for our own human habits." (Whitfield, 2004) These authors agree that healthy, local food production modeled after natural ecosystems establishes a base for *permanent culture.*

Permaculture restores healthy ecosystems that produce food without energy inputs and excessive human labor. By working with damaged ecosystems, permaculturists double as land restoration architects. Unlike most other environmental movements suggesting that Earth might be better off without human beings, permaculture proposes that Earth depends more than ever on conscious land stewards working to repair the damages that our modern civilizations have created on our landscapes (Mollison, 1991). Before initiating the transition movement, Rob Hopkins taught the first two-year, full-time permaculture program in the world (Hopkins, 2011). It is not surprising then that the Hopkin's includes permaculture founder, David Holmgren's *Permaculture Design Principles* (Figure 3) as a keystone of *The Transition Handbook.*

Figure 3 – *The Permaculture Design Principles*

Suburban communities across the country must relearn how to grow and produce their own food. Currently, less than 2% of the American population consists of farmers (Seidl, 2011) and the majority of these farmers live removed from populated areas (Feed Northampton, 2010). In addition to urging residents to grow their own food, local food movements advocate supporting regional farmers. Andres Duany writes in, *Suburban Nation*, that "when neighborhoods support local farmers, they become reacquainted with the landscapes and economic systems of their region."(54) Farmers-markets bring local produce to community centers and help to facilitate relationships between buyers and growers. Hopkins suggests in the *Transition Handbook* that farmers markets help to provide financial support to farmers who might otherwise sell their land to housing developers (139).

Local food movements also help to support species diversity in suburban communities and their greater regions. In *Finding Higher Ground*, Amy Seidl proposes that species diversity can help buffer human societies from extreme weather occurrences (72). Permaculture texts expand on the need to collect heirloom, native, seeds, urging growers to relearn traditional growing techniques such as land fallowing, trenching, and small-scale water interventions in their efforts to reintroduce local species (Mollison, 1991). Permaculture experts recognize that Earth's warming climate may provide more favorable growing climates in certain regions. Utilizing greenhouses growing techniques can also expand the realms of possibility for farmers attempting to grow a variety of species in colder climates. Vermont based permaculture expert Keith Morris speaks of bananas growing in Vermont greenhouses during the winter (Morris, K.,

2011). Innovations like these are helping to turn the challenges of climate change and peak oil into potential benefits for forward-thinking citizens and communities.

One obstacle that permaculturists and planners are confronting is how to involve the entire community in the local food revolution. Community leaders focused on environmental stewardship and local food initiatives are recognizing that the spread of locally based education is key to creating enduring community transformation. Since education has helped to create the current habits of American culture, it therefore follows that the emergence of any sustainable movement requires a new approach to instruction and education. This realization has led environmental educator, David Orr, to famously proposed that "nothing less than the redesign of education itself will do"(Orr, 1994) for arriving at truly sustainable and resiliency-focused communities.

Transitioning Education – The Local Approach to Learning

The plain fact is that the planet does not need more "successful" people. But it does desperately need more peacemakers, healers, restorers, storytellers, and lovers of every shape and form. It needs people who live well in their places. It needs people of moral courage willing to join the fight in making this world habitable and humane. These needs have little to do with success as our current culture [or schools] define it." David Orr

This section reviews the concepts of *place-based* and *community-based education,* two educational approaches that are helping to reconnect school curriculums across the country to locally grounded issues. Place-based education can be defined as "the pedagogy of community, the reintegration of the individual into their home ground and the restoration of the essential links between a person and their place." (Sobel, 2004) David Sobel, an international expert on place-based education theory, uses the term, "enlightened localism" when referring to place-based educational initiatives. Community-based education takes this approach one step further

by integrating the classroom within the businesses and organizations of a surrounding community.

In *Bringing it On Home,* Smith and Sobel explain that learning "grounded in local concerns and experience" is how most children were "inducted into adulthood before the creation of the common schooling." Following the emergence of standardized education, "children have experienced a growing disconnect between their lives and what they encounter in the classroom." (Smith and Sobel, 2010) In Berkeley, California, teachers at the *Martin Luther King Middle School* recognized an opportunity to combat a falling student attention rate with a campaign to base part of their learning around the creation and maintenance of a school garden. The success of this first garden eventually led to other schools initiating on-site gardens. Today, every schoolyard in the greater Bay Area has a classroom garden (Smith and Sobel, 2010).

Because these gardens cannot provide all of the school's year-round food, Berkeley's schools have established connections with local farmers to help provide the remainder of fresh, local, organic food year-round for their children. Sourcing students' breakfasts and lunches from local farms helps to support local farmers who otherwise might be struggling to make a profit growing organic food. This farm to school connection often provides enough financial support to farmers who may have previously considered selling their properties to suburban land developers (Smith and Sobel, 2010). But the farmers are not the only ones who benefit from the farm-to-school program. Students enjoy year round fresh local produce, a diet which in conjunction with their garden education, leads to a greater appreciation for "real" food.

Smith and Sobel offer countless other feel-good examples of place and community based educations occurring throughout the country. These initiatives are addressing the concentrations of language arts, mathematics, social studies, and various sciences (Smith and Sobel, 2010)

through the local lens. *Bringing It On Home* concludes that the success of place-based and community-based learning dictates that when students feel they can be useful to the community, their work takes meaning and they become more interested in learning (40).

Place-based education initiatives also help students to become leaders and innovative thinkers. Standard schooling does little to train students to think differently. In standard school, there is often one dominant way of thinking that ensures students earn high grades and praise from their teachers. That style of thinking involves memorizing class material for regurgitation on exams. In *Place-Based Education* (2006), Sobel writes that solutions to complex problems are more likely to emerge from diverse places and people that apply their intelligence and competence at a local level (40). This requires that students and community members believe they are capable of making a difference. It also requires that students be offered a way to translate their motivation for change into community action (40).

Applying the concepts of place-based education within suburban communities may help to fight the unimaginative monotony found in most suburban communities and schools (Louv, 2005). Students in these communities often suffer in creating identities for themselves. The repetition of strip malls, highways and single-family homes leaves few undisturbed natural areas for child to explore and learn (Mother Natures Child, 2009). Place-based education projects help to stimulate new personal development by reconnecting students to the uniqueness of place existing beyond their town's generic development (Sobel, 2006). These projects can help to educate students about the rich historical and natural context of their communities (Thayer Jr., 2003). They can also indirectly goad parents and whole communities into reconnecting with the natural areas of their place.

Locally focused pedagogies help to modify the intention of the education system. Instead of preparing students to leave home in their quest to climb the professional latter (Orr, 1994), place-based and community-based education initiatives train students in "preparation for global and local citizenship"(Sobel, 2004) while also providing a basis for continuing scholarship."(Sobel, 2004) David Orr reflects in *Earth in Mind,* "We continue to educate our young like there is no planetary emergency."(2) Similar to Sobel and Smith, Orr suggests that as students learn what it means to connect with their surroundings, they will discover and consider the concepts of climate change and environmental stewardship as they relate to their daily actions living within a larger community (Orr, 1994).

In *Last Child in the Woods,* Richard Louv describes the viral spread of a modern epidemic he calls, *nature deficit disorder* (10). The documentary, *Mother Nature's Child*, Stephen Kellert suggests that on average, "children today spend 90% less time outside per week than their parents did one generation ago." Supporting this statement, Louv writes about a fourth-grade student who explained to a teacher that playing indoors was "better because that's where the electrical outlets are."(Louv, 2005) Aside from the promise of getting students involved in their communities, place-based education initiatives promote students to explore nature. It is important that schools and communities fight against the spread of nature deficit disorder. For without a connection to the natural landscapes of one's place, the sustainable future of communities becomes increasingly more difficult to achieve (Thayer Jr., 2003).

Getting There – The Need for New Leaders

In his book, *It's a Sprawl World After All,* Douglas E. Morris presents the emergence of the 21st century, *sustainable community leader*. Morris offers a set of guidelines for individuals seeking to embody this new style of leadership. In order to effectively catalyze sustainable

communities, Morris' leader must be "well trained and intimately versed in architecture, environmental science, highway development, construction, sociology, psychology and more."(131) Additionally, these individuals must be able to conceptualize of long-term while at the same time "offering short-term solutions for instant community improvements."(132)

This thesis is my road map for personally applying the sustainable community leader principles within my hometown, Cherry Hill, NJ. The infrastructure and landscape of Cherry Hill Township is a textbook example of suburban development. The township is defined by sprawling development patterns that have resulted from a love for both car culture and privatized living. The design challenges of Cherry Hill's landscape include adaptively reusing miles of strip malls, highways, and parking lots, and private green spaces over the coming decades. These designs will work towards weakening the car-culture that has helped to solidify poor planning principles. Creating these alternative-planning agendas today while oil prices remain relatively low requires sustainable community leaders to persuade township residents and government to think long-term. This feat entails envisioning and marketing the potentially healthy landscapes and communities that a re-designed Cherry Hill could support in the near future.

The following methods section outlines an alternative approach to rethinking the landscape of Cherry Hill. Working in my home neighborhood, Willowdale, located on the east side of Cherry Hill, NJ, I outline my plan to implement Willowdale Community Garden. My intention for envisioning and implementing this garden is to apply my awareness of the major global environmental issues and action-oriented community movements outlined in this literature review to the context of my home. In doing so, I will embody the qualities of Morris' sustainable community leader.

METHODS SECTION

The following six primary objectives have motivated the methodology for this thesis. These objectives are articulated as follows:

1. Explore the disappearing stories of Cherry Hill's previous peoples and landscapes. Explain how reconnection with Cherry Hill's human history is relevant and necessary for creating community-oriented development.
2. Describe the sustainable community trends emerging in Cherry Hill Township.
3. Create personal connections with community-focused organizations and individuals working to strengthen sustainable initiatives throughout the township.
4. Determine what initiatives exist and how to best implement them into the following community garden project proposal.
5. Establish a strong connection with the Cherry Hill School District. Develop place-based education initiatives connected to proposed community garden project.
6. Finalize the initial design proposal for Willowdale Community Garden. Outline anticipated implementation steps and obstacles for making the garden vision into a reality.
7. Envision future Cherry Hill as a less oil dependent, creatively redesigned locality. Anticipate and reflect on the positive ripple effects of change that one community garden can have within an entire neighborhood.

Surveying Willowdale and Cherry Hill

This methods section explains how I arrived at the crescendo of my thesis: a completed design proposal for Willowdale Community Garden. It also details the various community

connections that I created through the process of writing and designing my thesis. It should be noted that the majority of my writing and research occurred while living in Vermont. This geographic challenge has resulted in numerous phone interviews and on-going email correspondences with Cherry Hill residents. My limited time in Cherry Hill included one week in November for Thanksgiving Break, three weeks during December and January for winter break, and one weekend visit near the end of March.

The first topics of research connected to the community garden proposal involved examining the natural and cultural history of Cherry Hill Township. Since Cherry Hill's development is a continuing storyline, I was interested in exploring past narratives embedded in the township's landscape. The primary published historical account detailing Cherry Hill is entitled, *A Brief History of Cherry Hill,* and is written by two local historians, Mathis and Magniafico. This text tells a truncated story of Cherry Hill following the emergence of white European colonists. In order to gather a more complete history of the township prior to colonists, I contacted and interviewed Tony Bonfiglio from *South Jersey Native American Artifacts Society*. To better understand the details of Cherry Hill's agricultural heritage, I interviewed long-time Cherry Hill residents, Bill and Inca Mollison, several times over winter break. These interviews allowed me to hear a personal account of life in Cherry Hill prior to suburban development.

After securing a general understanding regarding the pre-settlement, Native American, homesteading, and agricultural periods of Cherry Hill's extensive history, the next phase of research involved studying the current sustainability trends of the township. This section focused on township-wide, environmentally conscious and community focused initiatives that Sustainable Cherry Hill has created in Cherry Hill. Lori Braunstein, the founder of this non-profit

organization, met with me several times over break to discuss current and future suburban Cherry Hill.

Lori also connected me with key community sustainability players including Cherry Hill High School East's environmental studies teacher, Gina Oh. My interviews and email correspondence with Gina Oh led to a potential place-based education partnership with Cherry Hill East. In March, Mrs. Oh also allowed me to visit and speak with her environmental studies classes. This opportunity offered a chance to learn what high school students were thinking about their current and future township. It also allowed me to explore with students, the vision of an alternatively localized, food-producing, future Cherry Hill.

Two interviews with Lori's friend and township planner, Natalie Barney, helped me better comprehend the township's current development and land-use objectives. My interviews with Natalie Barney also allowed me to share my personal township vision. Natalie informed me of the passage of a master pedestrian and bike plan for the township. Our interviews helped me to recognize that Cherry Hill Township is beginning to consider how to adopt its aging infrastructure in more sustainable, condensed fashion. Information regarding the remainder of my interview schedule can be found at the end of my methods section under Figure 4.

The next section of research explored community gardens that could be used as models for designing Willowdale Community Garden. The first step of this section involved researching existing community gardens in Cherry Hill and the northeast region. From this research, two community gardens and one home garden were selected as models for Willowdale Community Garden's landscape design. These community gardening models include Northampton, MA's Montview Community Farm and Cherry Hill, NJ's Barclay Farms Community Garden. The

Russell's home garden from Cherry Hill, NJ, will also be referenced in the Willowdale Garden proposal.

After selecting my design models, I scheduled interviews with individuals from these gardens to learn more about their garden implementation and planning process. Two phone interviews with Montview Farms' founder, Lisa Depiano, provided me with information regarding the permaculture-inspired, community farm model. Phone conversations with Barclay Farms' coordinator, Sandra Ragonese, explained the role that Cherry Hill Township has played in supporting Barclay Farms' garden space initiative. Similar phone conversations with Bill Russell identified crops and planting methods that have proven fruitful for the climate and soil of his expansive home garden. With this knowledge and feedback, I was ready to design Willowdale Community Garden, a garden that would compliment and catalyze the township's current sustainability trends. Supplementary advice from Natalie Barney, Gina Oh, and Lori Braunstein helped to further develop and outline the theoretical steps for implementing this community garden.

The last component of research focused on the sustainable long-term transition of Cherry Hill. For this section, I contacted New Jersey state climatologist David Robinson to discuss future climate of the Mid-Atlantic Region in the coming decades. Frequent dialogue sessions with my thesis advisor and climate adaptation specialist, Amy Seidl, allowed me to better conceptualize the resource and climate volatility expected for future suburban communities. Lastly, attending Sustainable Cherry Hill's *Sustainability 101* workshop over winter break offered an opportunity to speak with Cherry Hill residents considering similar future community challenges. These conversations demonstrated a rising awareness among Cherry Hill residents concerning future climate and resource uncertainties.

Figure 4 - *Sustainable Leaders Interview Schedule*

Names	Contact	Date Interviewed	Background	Project Connection
Lori Braunstein	Lori.Braunstein@ sustainablecherryhill.org	12/22/11, 12/28/11, 1/8/12	Founder Sustainable CH	Mentor, project sponsor
Natalie Barney	NBarney@chtownship.com	12/23/11	CHT Land Use Planner	Land Use Issue Advice
Bill Russel	8564294564 (no email)	1/2/12	Longtime CHT resident, home gardener	Advice on crops choice, CH soil, climate
David Robinson	david.robinson @rutgers.edu	1/15/12	Rutgers NJ State Climatologist	Future climate projections
Tony Bonfiglio	Clovisresources @aol.com	2/14/12	Native American Historian	Information on pre-colonial history
Sandra Ragonese	SRagonese@ chtownship.com	2/14/12	CHT Organizer, Manager Barclay, Croft Farm Comm. Gardens	Feedback from existing CHT community gardens
Lisa Depiano	ldepiano@gmail.com	2/8/12	North Hampton MA, Suburban Comm. Garden Founder	Community Farm and Garden advice
Gina Oh	GOh@chclc.org	1/22/11	CHHSE Environmental Studies	Partner for Place Based Education

RESULTS SECTION

Aldo Leopold proposed that a community's identity and culture is a rooted reflection of its natural environment (Leopold, 1949). An example of this relationship is a beach town whose culture reflects a love and connection with the shoreline. Applying this quote to the context of Cherry Hill, NJ leads to a perplexing identity crises stemming from the commercial and consumer roots of the township's infrastructure. Cherry Hill is well known throughout the region for its expansive mall and highway system. Its residents often suffer a subconscious disconnect that occurs when a community fails to genuinely reflect a relationship with its natural surroundings (Morris, 2006). Local sustainability leader, Lori Braunstein, attributes this disconnect to Cherry Hill's lack of natural boundaries (Braunstein, 2011). The township does not contain a beach or defining body of water that helps contain development. It similarly lacks undulating slopes that naturally guide development patterns to concentrated centers (Figure 9).

[Image removed from digital version; available in hard copy version housed in the Environmental Program office.]

Figure 5 - *Topographic Map of PA & NJ.*
Notice the flat contour of southern NJ compared to the northwest area section of PA. As the Garden State, NJ is incredibly flat except for the northwest corner of the state. The southern flat terrain, paired with a sandy, clay soil (Barney, 2012) makes for incredibly rich and attractive farming landscape.

Cherry Hill's proximity to Philadelphia (5 miles east) historically made the area desirable for farming close to the city. As agriculture moved further east of Cherry Hill (ultimately extending outwards to the coast), Cherry Hill's proximity to the city increased it desirability for suburban development.

Today, the majority of this tri-state area (including DE) has been developed into suburban infrastructure. This density of development presents a unique challenge for future suburban planners and designers to interpret and adapt.

The lack of landscape connection is also fostered by a paradigm that champions modernity and convenience over an appreciation and respect for preserving natural surroundings. Unlike the native and colonial inhabitants of Cherry Hill, current suburban residents do not depend on the natural landscape to produce their daily needs (Braunstein, 2012). While the township has recently initiated a campaign to restore and conserve open spaces (Seneres, 2012), residents often use these spaces for recreation purposes only. The resulting schism between the township's natural health and the community's collective health helps to support a transient township population that does not feel obligated to invest in the long-term health of its local environment (De Young, 2012). A dominant transient culture is one symptom of place-less-ness, a mentality that occurs when the identity of a collective community fails to reflect a connection with natural landscape of the bioregion (De young, 2012). Unfortunately Cherry Hill's prolific commuter culture leaves limited time for rethinking personal involvement with place (Illich, 1974). This disengagement makes it difficult for residents to imagine how the surrounding landscape has undergone radical transformations in order to arrive at its present appearance (Bonfiglio, 2012). Furthermore, overlooking the landscape's narrative make it increasingly difficult for conceptualize how their community will evolve in the future.

Reconnecting residents to the rich history of place existing within Cherry Hill's landscape will help to overcome the dangerous an apparent presence of *place-less-ness* (Relph, 1976). But reinvigorating the uniqueness of Cherry Hill's community identity is no small feat. It requires recounting the stories of Cherry Hill's history prior to suburbia. It is important that current Cherry Hill residents recognize that today's supermarket parking lots used to sustain apple orchards and that shopping mall sprawl used to support healthy old-growth ecosystems

(Mathis and Magniafico, 2010). Exercising this envisioning lens through the reeducation of previous landuse patterns and community systems will help reinforce a growing paradigm for imagining sustainable community redevelopment in Cherry Hill.

The Original Inhabitants of Cherry Hill

Cherry Hill Township has existed as a municipality for approximately fifty years. But the first human inhabitants of the area were the Pre-Paleolithic natives who lived in the area nearly thirty thousand years ago (Bonfiglio, 2012). This means that historically, the era of colonization and present development in Cherry Hill accounts for less than 1% of the time, humans have inhabited the region. But Cherry Hill thirty thousand years ago was a very different place. Even ten thousand years ago, the area consisted of tundra and experienced a much colder annual climate. During this time, nomadic tribes traveled north to south through the Delaware Valley as they followed migratory mastodon, mammoth, giant bear, sloth and elk. The remains of archeologically salvaged structures and artifacts from this era suggest that people established camps in the winter to survive the brutally cold months of the year.

Tony Bonfiglio, a south jersey Native American anthropologist, is in the process of digging and recording several Native Indian excavations in Cherry Hill. Tony has learned from his excavation experiences that “if there is a water source that has existed for several thousand years in Cherry Hill, then there are Native American artifacts existing around that water body.” (Bonfiglio, 2012) These excavations have also allowed Tony and his archeology companions to piece together an evolving picture of Native American culture during this time. Artifacts suggest that as climate warmed ten thousand years ago, forests began to thrive and a growing population of semi-sedentary Indians created settlements throughout Delaware Valley.

The people of these settlements thrived by diversifying their food economies amongst hunting, fishing, foraging, and farming practices. Settlements that depleted their food or fire resources would need to secure new territory. For nearly ten thousand years, a warming climate helped to support a prosperous and knowledgeable Native American population within the Delaware Valley. When white settlers arrived on the shores of the Delaware River nearly four hundred years ago, they encountered native people and their small settlements. These native humans and their ancestors survived nearly thirty thousand years by satisfying their needs locally in harsher climates than the one that Cherry Hill residents experience today. Natives quickly learned out of necessity to respect the abundance of their natural resources for the continuation and expansion of their collective health. This is a philosophy and approach that current Cherry Hill's residents must quickly relearn.

The Emergence of White Settlers

With the emergence of white settlers, the indigenous people of Cherry Hill quickly disappeared due to disease and displacement from their native lands (Mathis and Magniafico, 2010). Since the historical account of this disappearance is written from the colonial perspectives, the story from colonists depicts the natives as overly trusting, ignorant people. Most residents today fail to realize that Native Americans inhabited the Delaware Valley for thousands of years prior to white settlement. Discounting this rich sense of place makes it easier for current residents to believe that Cherry Hill's landscape is relatively new. This fallacy may be responsible for creating a current land-ethic that does not value conserving the landscape.

As the native population disappeared from the landscape, a handful of wealthy colonial homesteaders left Philadelphia to create the farming township of Waterford.[4] During the 18th and

[4] Waterford Township became Delaware Township before being named Cherry Hill Township.

19th century, small farming villages emerged throughout Waterford's rural countryside to support the homesteading operations of the area. One of these villages, Ellisburg, was established in 1831 and offered farming residents, Ellisburg School and Waterford Town Hall. These landmarks sat on the property that now houses the McDonalds on Route-70 (Mathis and Magniafico, 2010). Despite the demolition and development of this historic landmark, the Ellisburg neighborhood serves as the closest form of a downtown currently existing within Cherry Hill Township (26).

As agricultural villages transitioned into small towns, a growing population of hearty farmers and masons flourished. A description of Waterford Township from *The History of Camden County* depicts the 19th century population as "a prosperous agricultural community with carriage-making shops and gristmills." These residents were considered to be an "intelligent, honest, economical and industrious class of citizens."(Mathis and Magniafico, 2010) The township's mills during the late 19th century turned locally grown wheat and grains into flour and corn into cornmeal. Sawmills turned the abundance of tree stands into lumber for homes and businesses. The state's censuses produced each decade of the 19th century shows that most of the early farmers produced almost "everything they needed to sustain their families on their property." (Mathis and Magniafico, 2010) *A Brief History of Cherry Hill* explains that the late 19th century, a single family would often produce "wheat, rye, corn, oats, Irish white and sweet potatoes buckwheat, hay, beans, carrots, and onions"(29) for household use. Milk cows and other cattle, swine, and sheep, as well as oxen and horses, dotted the landscape of farms throughout the township (29).[5] Like the preceding natives populations, the livelihoods of

[5] Description references George Prowell's 1886 description of Waterford Township.

residents living in 19th century Waterford Township depended upon a knowledge and respect for the surrounding natural landscape.

Subdivisions and Suburbia

Beginning in the 20th century, the livelihoods and lifestyles of Delaware Township changed. Up to this point, every generation that inhabited the area produced and consumed products made from their community and local region. Between the First World War and the 1950's, Delaware Township transitioned from an agriculture landscape of large subsistence farms to subdivided smaller farms growing specialized commercial produce. Long-time Cherry Hill resident, Bill Russell, moved to the township during the early 1940's in the midst of the agricultural subdivisions. Before Route-295 and the New Jersey Turnpike cut the land running adjacent to his property, Bill remembers that the lands east of his house consisted of farms and forest. Bill's account of pre-suburban Cherry Hill recalls "visions of apple and peach orchards lining streets that currently boast strip malls and business campuses."(Russell, 2012)

Figure 7 - *Map of Cherry Hill Showing Route 295 and NJ Turnpike Dissecting Township*

[Image removed from digital version; available in hard copy version housed in the Environmental Program office.]

On July 18, 1942, the development trends of Delaware Township were seriously altered. On this day, the Garden State Park Racetrack opened its doors for business. Developed by business entrepreneur, Eugene Mori, the success of this racetrack following World War II helped to raise the price of property value surrounding the project's site. This price spike offered new incentive to farmers considering selling their land to housing and business developers. With the emergence of a strong national post-war economy, eager land developers recognized the potential of developing Delaware Township into housing stock. Lacking a planning commission

to coordinate the ensuing surge of development, the township's landscape transformed from agricultural to suburban infrastructure.

Capitalizing on the momentum and popularity of the racetrack, Eugene Mori's second project, the *Cherry Hill Inn*, opened for business in 1953. The combination of the racetrack and nearby Inn helped attract a growing number of regional tourists seeking a quick getaway. Complimenting the sporty attraction of the racetrack, the Inn's elegance charmed a more upscale subset of visitors from the city. This attraction further increased the value of farmland, offering greater incentive to farmers considering selling their land to perspective developers.

Bill Russell remembers experiencing this second wave of suburban development. He recalls that one by one, his neighbors began selling their properties to developers. Existing farmhouses were leveled to make way for new housing developments (Russell, 2012). These neighborhoods soon housed urbanites and other middle class families wanting to have both the "leisure of the country and the entertainment of the city."(Mathis and Magniafico, 2010, 35) As development surged, holdout farms were forced to expand specialized food production methods in an attempt to earn greater profits to afford rising township taxes. Bill Russell recounts that during this time, young college students still traveled from the city to the remaining farms of Delaware Township to help pick tomatoes destined for Campbell's Soup factory in Camden, NJ. Similarly, the local grange hall in nearby Haddonfield continued to attract farmers of the area to meet and discuss their businesses and feelings towards development trends. But despite the continuation of agrarian culture, the wave of suburban development continued to surge.

The third decisive development project in Delaware Township occurred on October 11, 1961 with the opening of the Cherry Hill Shopping Center. If Mori's racetrack had initiated the trend of price spikes and suburban development, the creation of the Cherry Hill Shopping

Center[6] confirmed the township's suburban development future. The mall was the first indoor climate controlled shopping destination, east of the Mississippi River.[7] The developers of the shopping center intended to create a centrally located community and business center (Mathis and Magniafico, 2010). Covering fifteen acres with illuminated parking for over forty-five hundred cars (Figure 6), the resulting complex design also included spaces for "children's theaters, summer concerts, Easter services and junior proms."(Mathis and Magniafico, 2010) Its shopping experience received regional attention for its cleanliness and "consistent seventy-two degree temperatures."(58)

Figure 6 – *Aerial View of Cherry Hill Shopping Center and parking lot.*

[Image removed from digital version; available in hard copy version housed in the Environmental Program office.]

The mall opened at a pivotal moment when the creation of an authentic downtown was most needed for the township (Mathis and Magniafico, 2010). Cherry Hill Shopping Center replaced the potential of "mom and pop shops" with an array of national shopping store chains. Its regional popularity kept in line with the desires of private land developers aiming to attract potential residents to Delaware Township (58). But *A Brief History* recounts that the mall was not an overnight success (59). Shoppers of the area were used to the retail stores of historic downtowns in nearby Haddonfield and Moorestown. Residents used to shopping on "Main Street" had to adjust to the new style of futuristic shopping experienced at the mall. The creation of Cherry Hill's major highways also helped to link outside residents to Cherry Hill's new commercial indoor downtown. With approaching post-peak oil culture, automobile-dependent

[6] Funded by the Rouse Company, Cherry Hill Shopping Center cost an estimated 30 million dollars to build.
[7] Today, the shopping destination is known as Cherry Hill Mall.

infrastructure like The Cherry Hill Mall may face challenges operating with the rising cost oil (Vanessa Parlette, 2010). As consumer trends begin to favor outdoor shopping and the recreation of downtowns, suburban planners and designers are recognizing that mall complexes can be transformed into mixed-use, mass-transit supporting, community hubs (Durham-Jones, 2009).[8]

New age suburban planners and designers are working to reverse the shortsighted building approach practiced by Cherry Hill's second suburban wave developers. While lacking in resource efficiency, township developers from this second wave of development succeeded in creating safe and comfortable communities for the thousands of families and residents that currently live in Cherry Hill. Between 1950 and 1970, the surge of suburban development supported a population increase from 10,380 to 64,395 residents in Delaware Township (Mathis and Magniafico, 2010). Thomas Fisher, the civil engineer responsible for naming new streets in the township during the second wave of development attests to the loss of local identity that occurred during the development surge of the 50's and 60's. In *A Brief History of Cherry Hill,* Fisher explains, "We did so many plans so quickly that the developers didn't want to bother with something so mundane as naming street names, but you had to have a new street name approved."(76) Fisher describes that he combined names from "a London street map, a Philadelphia phone book and a collection of Indian names" from the area (57). "It was not as planned as it seemed." Planning could not happen because "everything was growing so fast."(57)

In 1974, the apple orchardist, Lewis Barton, explained his mixed feelings in viewing the generic development of his community (Mathis and Magniafico, 2010). In this account, he explained that in twenty years, the eighty-two farms of the township had dwindled to a handful

[8] *Retrofitting Suburbia* offers an example Surrey Central City, a post-mall project that transformed a 620,000 square foot mall into offices, university, shops, and restaurants This complex is located 40 minutes outside of Vancouver, Canada (137).

of holdout farms (79).[9] Looking back on the previous twenty-year transition period of his township, Barton explained in his oral account, "We have not developed in what I consider a really satisfactory way, we are full of sign boards, gas stations and eating places. Unfortunately, during the last twenty years, we have let the good atmosphere of country living escape us somehow."(79)

In an attempt to retain aspects of Delaware Township's country living atmosphere, some developers of Cherry Hill did attempt to construct homes and shopping centers within the farmhouse style. While designing Barclay Farms residential community, Bob Scarborough incorporated farmhouse-inspired designs to his housing stock. Scarborough also insisted on preserving the historic Barclay Farms Homestead[10] while commissioning local architect, Malcolm Wells, to design the brand-new, Barclay Covered-Bridge. This structure which has become a local landmark for the township was created to make residents feel more at home in their new community. This salvaged approach to retaining the agrarian heritage of Cherry Hill seems to be a reoccurring theme throughout the township. In creating suburban Cherry Hill, developers rarely focused on creating a sense of place for residents. Rather, the development approach focused on constructing large-scale residential and commercial development while preserving aspects of the previous landscape's agricultural heritage.

Compared to the natural evolution and development that has traditionally occurred in cities and towns, Cherry Hill's development suburban pattern has worked backwards. Instead of a rising population dictating new development, new development has attracted an increasing population. Large-scale entertainment hot spots were the first to emerge in Delaware Township's largely undeveloped agrarian landscape. The scattered openings of these attractions helped to

[9] Lewis Barton School now sits within Scarborough's Barclay Farms residential neighborhood.
[10] This homestead still stands today at the site of Barclay Farms Community Garden.

create a sustained attraction for regional residents interested in visiting Delaware Township. As thousands visitors examined the township's rising housing stock, they decided that Delaware Township offered a nice place to live and established themselves as residents within the new landscape of single-family homes. With the creation of The Cherry Hill Mall, the area has seen an increasing number of national and regional chains emerge to meet the consumer demands of a rising population.

Sympathy Towards Suburbia

I should be very clear in stating that despite my somewhat reproachful tone in addressing suburbia, I do not think that suburban development is inherently bad. Suburban development has succeeded in providing thousands of families with private and safe, domestic experiences. The original suburban families who moved to Cherry Hill desired cleaner and quieter living conditions, a respite from rising discomforts of inner-city living. These families wanted to provide their children with a taste of nature while remaining close to city employment opportunities. It is important to recognize that the creation of suburban communities was well-intentioned. Unfortunately, the maturation of suburban communities has resulted in the unfolding of artificially natural, semi-urban landscapes. As these communities continue to develop, sprawling townships like Cherry Hill are beginning to turning into "places not worth caring about."(Kunstler, 2011)

Another important observation to note about the development of suburban communities is that as the number of families and houses increase, the average household consumption level continues to rise. The paradigm supporting this trend is that most suburban parents feel the need to provide excessively comfortable lives for their children (Louv, 2005). Again, the intention behind this trend is positive. Parents who love their children often translate their love through

buying and gifting goods. To house these things, families have been buying increasingly large homes. Douglas E. Morris writes, “the average suburban house has quadrupled in size since 1950 (63). Cherry Hill residents are largely unaware that the natural resource supply needed to sustain current lifestyle habits is dwindling (Braunstein, 2012). As global and local populations continue to rise, suburban families must consider their responsibility to decrease personal consumption (Tainter, 1988).

Despite my personal bias against the suburban culture, I recognize that Cherry Hill has the potential to offer truly enriching community experiences. I also recognize that many residents today are very happy with the lifestyle that current Cherry Hill provides (Barney, 2012). Living outside of Cherry Hill has allowed me to experience places supporting community culture. Returning home to the privatized culture of Cherry Hill, I have begun to envision how Cherry Hill’s infrastructure can be adapted to support the creation of active public spaces. More importantly, I am considering how the creation of active public spaces will connect with the growing sustainability movement currently emerging in Cherry Hill.

Trends Toward a Sustainable Cherry Hill

One individual who has worked to initiate and strengthen the sustainability movement in Cherry Hill is Lori Braunstein. Six years ago, Lori was a sociologist who noticed the issues of environmental destruction appearing in the news. Lori explains, “Topics like global warming and peak oil were found in many publications and yet no one was talking about it.”(Braunstein, 2011) An interest in these current events led to an fascination with self-educating herself on all things sustainable. In 2007, after a year of educating herself on pressing global environmental issues, Lori decided that something had to be done locally. With zero experience in environmental activism and few expectations, she took action.

Working with a handful of other interested community residents, Lori approached then Mayor Bernie Platt with an idea to start sustainability initiatives at Cherry Hill's municipal level. The emerging partnership between Lori's group and the local government led to the Cherry Hill's first official climate action plan. It also inspired the creation of *The Mayor's Ten Point Green Action Plan* and township-wide, *Climate Action Plan.* This plan included initiatives for municipal energy audits, solar panel installations on municipal buildings, environmentally friendly cleaning products for all government buildings, and the creation of a better recycling program for the township.

Following the success of this initial action, Lori was hooked. Her efforts received positive attention from the local media, especially after the mayor was awarded the state's environmental excellence award in 2007. As the positive accolades continued from state and regional levels, Lori and her friends were able to pressure the local government into walking the talk of sustainability. As a result, a township synonymous with suburban sprawl has begun to take the necessary baby steps towards a well-planned future. The success of Cherry Hill's *Climate Action Plan* has led Lori to create *Sustainable Cherry Hill,* a*"* a community outreach and educational organization non-profit intended to foster global environmental awareness and action at the local township and regional level." (sustainablecherryhill.org) In 2008, the umbrella organization *Sustainable Jersey* also formed to support statewide initiatives working towards the creation of sustainable communities.

Lori recognizes that the township's municipality was a great place to initiative green trends. But after working solely with government, she realized that effective sustainable change would require working with a variety of community organizations and sectors in Cherry Hill. As Sustainable Cherry Hill's website explains, "Cherry Hill's greatest resource for solving problems

is its people". Reaching these people has led to the organization's involvement with educational events, networking opportunities, and community-based task forces. The mentality behind the organization's expansion is that "small changes add up to big impacts."(Braunstein, 2011) But small changes can only add up if many individuals, businesses and institutions are involved in creating sustainable initiatives.

As the sustainable movement spreads throughout the township, Lori believes that a "local revolution" will inevitably occur. Braunstein suggests that this revolution will parallel Malcolm Gladwell's "Tipping Point" theory (Gladwell, 2002). This theory suggests that social change often begins with a few individuals who foresee a systems shift before it occurs. These visionaries support a transition by creating spaces for change to begin. Eventually, an alternative model of a previous system reaches a critical point where it captivates the attention of an open-minded critical mass. At the point when a critical mass adopts the new paradigm, a tipping point occurs (Gladwell, 2002). Lori acknowledges that there will always be individuals who reject change, even if modifications are rooted in a forward-thinking approach. But as the proposed transition is successful adopted by the critical mass, the transition will occur.

The challenge than becomes marketing the sustainability movement to the critical mass of Cherry Hill's residents. Lori has approached this challenge by identifying the commonalities of Cherry Hill's residents. In this way, she has embodied characteristics of Douglas E. Morris's sustainable community leader, connecting bridges with a variety of individuals and organizations in an attempt to elicit a sustainable township transition.

Examining Cherry Hill's Suburban Selling Points

The selling points of suburbia have changed little since their creation nearly half a century ago. The housing developers of 1950's Cherry Hill promised homeowners, the luxuries

of security, comfort, and convenience. Cherry Hill continues to provide these luxuries today. Current selling points also include strong school systems that help to retain young families and an easily accessible highway system that supports commuting to nearby jobs. An array of strip malls and grocery stores also helps to keep shopping convenient. And since suburban culture revolves around returning to family and the home, the current lack of activated public space causes little complaint amongst residents (Barney, 2012).

As long as oil remains cheap and plentiful, suburbia is an attractive model for community. But the moment that oil becomes expensive as supplies dwindle, the selling points associated with suburban living are thrown into jeopardy. Lori Braunstein recognizes that rising oil prices may to catalyze a local movement and awareness in Cherry Hill. But she clarifies that people should not be pressured by fear to change. In the context of suburbia, homeowners need to be reassured that their children and community will enjoy bright futures. Whether confidence in a brighter future stems from dependable employment opportunities or the promise of consistent food supply, any successful suburban transition must promise short-term individual benefit. De Young and Prince expand on this claim, suggesting that humans are capable of evolving and interacting in entirely new ways, so long as they are motivated by intrinsic satisfaction (2012, 208).

One intrinsic satisfaction shared consistently across cultures is an appreciation and respect for delicious food. At present, food is a commodity that is purchased by Cherry Hill residents. It comes from faraway places for most of the year. And it relies on oil-based applications and systems to produce and transport agricultural goods to market. In order to maintain the sense of food security that suburban communities such as Cherry Hill currently enjoy, residents must begin relearning how to produce food locally without oil. Visionaries who

foresee the importance of local food initiatives must assume the responsibility of persuading residents to join the local food movement. More importantly, they articulate how this inconvenient method of securing food will improve personal well-being.

With graduation approaching, my goal is to help create a community garden space that persuades a growing percentage of my home neighborhood to experiment with local food production. Community gardening offers a place for neighbors to overcome potentially intimidating uncertainties regarding food production. Through neighborhood support and educational opportunities, community gardening helps to attract neophyte farmers to the local food movement. Permaculture professor Keith Morris says that this is the best time to experiment with food production because if growing operations fail, the supermarket still exists down the road (Morris, 2011).

Sustainable Cherry Hill's recent community initiatives have helped to establish a growing momentum for a township-wide sustainability movement. But like any environmental movement, the progress of local awareness can stall out. Cherry Hill therefore needs additional sustainable community leaders that are willing to push forward a strong local agenda in action-oriented ways. These leaders must work within familiar neighborhoods to support the emergence of healthy community-supporting places (Illich, 1968). In a following section, I will propose my vision and design for Willowdale Community Garden, a project that aims to empower the neighbors of the Willowdale community to experiment with growing their own food. But before outlining my garden proposal, it is necessary to examine three case studies of suburban food-producing initiatives whose garden models have influenced my design for Willowdale Community Garden.

Three Case Studies of Local Food Production

The first case study comes from Montview Farms, a community farm formed in 2006 in the suburban community of Northampton, MA[11]. The idea for Montview Farms emerged from the imagination of local Northampton residents. One day while taking a walk in their local neighborhood, Lisa Depiano and a handful of friends envisioned a permaculture community farm on a piece of underused township property. After forming the core-gardening volunteer team, the Depiano and her three friends contacted the township of Northampton to inquire about the land. They discovered that the previous owner of the land had sold their property to the township in order to protect the land from housing development. After several meetings with the township of Northampton, the four friends agreed to a favorable land-grant deal, securing the rights to farm the preserved piece of property for five years in exchange township volunteer hours.

Five years later, Montview Farms has become a model for community farming (Depiano, 2012). The community farm blends private plots within the greater perennial farm design. It also practices permaculture-inspired growing methods to produce a variety of annual and perennial, organic crops. These specialties help to make the community farm a research site for local neighbors, schools, colleges and community garden enthusiasts from around the area. The site's location also makes the farm a demonstration site for proving what is possible for food production in a suburban setting.

Montview Farms recently released the *Montview Farms Case Study Report (MFCSR)*, a support document that offers a detailed analysis of how Northampton's first community garden has succeeded in organizing local action. This report offers other communities and townships, a model for creating a one to two acre, community farm or garden. This size allows farmers to

[11] Montview Farms photo available in appendix section.

practice human-powered, no-till gardening,[12] one easy alternative to protecting soil fertility without applying petroleum based fertilizers. As the case-study publication states, "Tilling with gas-powered machinery such as tractors or roto-tillers increases the amount of energy used to produce food."

Another example of fossil fuel dependency practiced on the farm is the use of biodiversity as a natural pesticide. Montview Farm recognizes that landscapes with only one primary crop are more susceptible to pest invasion (*MFCSR*, 2011*)*. Their landscape grows a maximum variety of plants and crops. These varieties also help to protect the farm from future climate change that could affect certain crops more than others (Seidl, 2010). Such efforts towards petroleum independence and global warming resilience depict the long-range perspective embedded in Montview Farms' design.

As is usually the case with the transition culture, the community farm has also improved Northampton's neighborhood connectedness. In their case study, one farm members states, "The farm has created a new sense of community. We [in the neighborhood] have come together over the farm and over the property that was once destined for condominium construction." The case study report also explains how residents often gather spontaneously on the farm during growing season to volunteer and play. Neighbors also walk their dogs through the farm and stop to watch their children play on the nearby soccer field (*MFCSR*, 2011).

While demonstrating the wide array of benefits that the community farm has brought to the Northampton community, the case study report also notes that Montview Farms is capable of

[12] No-till gardening works by laying down pieces of used cardboard over the landscape and then covering the cardboard with a layer of compost and mulch. This cardboard sheet layer prevents sun and air from reaching any underlying weeds or crops. As rain and moisture mixes with the freshly laid topsoil and cardboard, the cardboard dissolves and the new and old soils mix. What emerges is a thick layer of nutrient rich soil for gardeners to enjoy.

feeding very few families. At its peak food production in 2008, the farm and its gardens produced enough food to feed 15 families for the majority of the year. The educational component of Montview Farms however, has taught individuals to grow additional food on their home properties. And the popularity of the farm has led to the creation of a larger organic CSA located up the street. Most importantly, Montview Farms' success has lead to the creation of the township's, *Feed Northampton Plan,* an innovative document that outlines the municipality's long-term plan for working towards local food security.

The second case study is Barclay Farms Plant-A-Patch Community Garden,[13] the only community garden that currently exists in Cherry Hill, NJ. Founded in 1977, the garden was created by a collection of neighbors who wished to preserve the rich agricultural heritage of the Barclay Farmstead property. The township helped in creating the garden's infrastructure, extending a township water connection from the nearby street to the proposed garden plots. Today, there are over one hundred private garden plots existing at Barclay Farms. The plots measure 10 x 12 feet. A two-foot walking path also separates these plots and allows for gardeners to easily tend their areas.

Gardeners pay $20.00 per year to rent plots, a fee that helps cover the cost of municipal water and other maintenance costs. This fee also provides gardeners with several additional perks. Each gardening season begins with the plant-a-patch information session. This session is intended to instruct the basics of gardening to new members seeking gardening advice. Every year, fresh topsoil is delivered and every other year, the community garden site is sown with barley to naturally fertilize the garden plots. Additionally, gardeners enjoy an annual farmer's

[13] Photo of Barclay Community Garden available in appendix section

dinner, held at the historic Barclay Farmstead. This dinner allows gardeners to show off their year's harvest and provides a great community gathering focused on freshly grown food.

Sandra Ragonese, the township's historic director, is currently in charge of running the Barclay community garden. Sandra explained that the plant-a-patch program lists a handful of guidelines that gardeners must follow (Ragonese, 2012). Most of these guidelines are listed in the gardener's *Memo Of Understanding.*[14] This Memo of Understanding will be used as a model for creating the guidelines and restrictions for gardening at Willowdale Community Farm. These guidelines offer common sense reminders to prospective gardeners. They also restrict the application of synthetic pesticides and fertilizers to garden plots.

The last case study is also located in Cherry Hill and examines Bill Russell and Inca Szucs' expansive home garden.*[15]* Both Bill and Inca are in there seventies and practice a strictly vegan, organic diet. Their backyard garden demonstrates the food production potential of a cultivated suburban home property. In this way, the couple has become a model for creating innovative resiliency in their own backyard. Bill and Inca's philosophy for gardening is rooted in their skepticism towards the modern American food system. In their minds, " even the organic food at the store can't be trusted". Bill understands that in order for a head of lettuce to arrive in its ripe state at the store, lettuce has to be picked far in advance of its readiness. This affects the amount of nutrients that are ultimately present in heavily transported food (Pollen, 2006).

For this couple, food is medicine. Their diet helps them fight off colds and illnesses that might plague other people their age eating conventional diets. Bill and Inca have an incredible knowledge of how to grow their crops within the climate of Cherry Hill. They are aware of the

[14] Memo Of Understanding available in appendix section.
[15] Photo of the Russell's Garden available in appendix section

nutritional benefits behind each of the foods they eat. And they have become creative in storing foods to make their local bounty last through winter. Last year, Inca made thirty loafs of zucchini bread which she froze and stored. She also canned over thirty jars of tomato sauce. Bill also shared with pride that last season's garden yielded yummy sweet potatoes, onions, garlic, fairly descent peppers, three types of eggplants, string beans, strawberries, blueberries, spring kale, collard greens and squash (Russell, 2012).

Like Lisa Depiano from Montview Farms, Bill's gardening practice traces back to his childhood. Growing up in the early 1940's, Bill recalls his mother's victory garden. Bill remembers his mother's garden producing so many tomatoes that their family made tomato jam. In the 1970's, Bill started gardening with a small patch in his backyard. With each successful year, the garden grew to include a greater variety and number of plants. Today, Bill and Inca's property has been cultivated into a mini farm. Existing on approximately half an acre of land, their garden now includes raised beds, green houses, hoop houses, fenced-in growing areas and net covered berry areas. Small gnomes and artwork decorate their garden sanctuary. For Inca, the home garden has become her spiritual sanctuary.

But Bill and Inca are not the only animals enjoying their garden space. Deer, squirrels and various species of local birds all take share of the garden produce. Despite fences and nets, Cherry Hill's animals find ways to get at the garden's crops. But, as the couple explains, "That's nature." (Russell, 2012) Despite animal encroachment and natural weather disturbances, their philosophy remains the following: "It is better to work with nature than to work against it." This philosophy, along with the couple's crop selection, growing techniques, and natural crop defense mechanisms will be applied within the following design details for Willowdale Community Garden.

PROPOSAL FOR WILLOWDALE GARDEN

The following section outlines my garden proposal and site-design for Willowdale Community Garden. In doing so, it includes:

- A description of the proposed garden site's history and heritage preceding its present condition as a mowed field within a suburban neighborhood park.
- A review of the major proposed design components for the site. These components include the placement of a private garden bed section and the implementation of permaculture-inspired: swales, perennial garden patches and forest gardens.
- An overview of the proposed place-based education partnership with Cherry Hill High School East and the greater Cherry Hill School District.
- A generalized, step-by-step, implementation approach for translating the proposed project vision and design into reality.

A Brief Recount of Willowdale Park's History

The proposed garden in Willowdale Parks sits in the middle of the Willowdale community, a subset of the larger area known as Woodcrest on the east side of Cherry Hill. Prior to the 1960's, the expansive undeveloped landscape surrounding Willowdale Park consisted of the Willet Family's apple orchards and forest (Patti, 2012). For generations, the Willet Family's orchards produced apples destined for nearby Philadelphia. Interestingly, a train station named Orchard Station used to exist near the intersection of Kresson and Springdale Road (Russell, 2012). The proximity of this station allowed farming families like the Willets to send their apples via rail, to Philadelphia's markets. As Delaware Township transitioned to car-culture following the 1940's, the majority of the township's train-lines closed. Around this time, the Willet Family

sold the majority of their one-hundred-and-twenty plus acre property to housing developers. Over the next several decades, the landscape surrounding the Willet Farmhouse was transformed into approximately one thousand, single-family homes (Figure 8).

Figure 8 – *Proposed Site Within Willowdale Park*

[Image removed from digital version; available in hard copy version housed in the Environmental Program office.]

Thankfully, the township of Cherry Hill purchased and conserved the Willet's seven-acre farm in the 1980's. Currently known as Willowdale Park, this site contains remnants of the landscapes rich agricultural heritage. The park property surrounding the proposed garden site (Figure 8) still supports a handful of aging apples trees from the previous apple orchards. Additionally, the historic Willet Farmhouse (Figure 9) sits just north of the proposed garden site. Local Willowdale resident, Aimee Patti, previously lived in the Willet Farmhouse for nearly a decade. Living in the Willet Farmhouse allowed Aimee to explore the rich history encapsulated in the two hundred and fifty year old homestead property. In a personal interview the previous resident, Patti described how "Nine Willet generations inhabited the farmhouse over the course of two centuries. As the Willet Farm and family grew, the farmhouse also expanded to fit the families' evolving needs (Patti, 2012).

Figure 9 – *A Photo of the Willet Family Farmhouse*

When Aimee lived in the farmhouse, she also met Mary Willet, the most recent Willet wife to have inhabited the house. Meeting Mary helped Aimee to better understand the property's unique story. Aimee explained, "In the 1900's, the orchard and homesteading operations of the Willet Farm developed to include dairy operations."(2012) As these operations expanded, a small neighborhood of farmhands and families emerged just north of the Willet Farmhouse. The majority of these supplementary farmhouses remain today. As the subdivided properties of the area developed through the 1950's, the Willet family continued to run a small daily operation on their land. Aimee remembers speaking with Willowdale residents who recall cows grazing behind their fences on the Willet property before it became Willowdale Park (Patti, 2012).

Thankfully, the township of Cherry Hill bought and preserved the undeveloped seven-acre Willet Property. Today, the presence of Willowdale Park offers residents an open green space for exercising and relaxing. The park includes a popular playground that attracts young children and their parents and a basketball court popular amongst adolescents. It also offers Willowdale Pond, a scenic water body that notoriously attracts Canadian Geese. The droppings of these noisy animals have led residents to nickname the park, Poop Park. In addition to Canadian Geese, rabbit, squirrel, raccoons, deer, foxes, and a variety of other bird either visit or live in the park.

Site Analysis

The proposal for Willowdale Community Garden focuses on transforming a one-acre parcel of underused grass into an efficiently planned, food-producing landscape and community garden. This parcel sits due south of the Willet Farmhouse and east of the Willowdale Pond (Figure 8). It is surrounded on the north, east and south side by a narrow woodland stand. Consisting mainly of beech and oak trees, the existence of this woodland provides a natural buffer between the grassy field and the surrounding suburban houses.

The grassy field is currently mowed once a month during the spring, summer, and fall seasons. The majority of the field slopes gradually to the southwest. This slope, paired with the buffer from the surrounding trees and nearby Willowdale Pond to the west, help to create a warm microclimate on the grassy field. The entrance to the field lies on the west side of the proposed site and measures 30 feet (Figure 10). As the site moves east, the width of the field increases. Just east of middle on site measures 200 feet north-to-south while the east side extends nearly 185 feet. Measured on the south side, the site extends approximately 100 feet east-to-west. The north side of the site bends in a concave direction and measures approximately 200 feet.

Being in Cherry Hill, the site has enjoys a humid, subtropical climate with cool winters, and hot humid summers (weather.com). The average high and low temperatures for July are 89 and 59 degrees Fahrenheit while the average high and low temperatures for January are 43 and 23 degrees Fahrenheit (weather.com). The site's soil type consists of a mix of sandy and clay-loam soils (Barney, 2012). While further topsoil analysis is required prior to gardening, the landscape's agricultural heritage paired with personal observations and analysis of the soil over winter break, support the likelihood that the site's soil is healthy and fertile for gardening.

Figure 10 – *View Looking East from Entrance to Proposed Willowdale Garden Site*

Site Design Overview for Willowdale Community Garden

Willowdale Community Garden combines design components from the three examined case studies, Montview Farms, Barclay Farms, and the Russell's home garden (Figure 11). In this approach, the garden site combines the private garden plots with a variety of permaculture-inspired, public food producing landscapes. This design combines models of community gardening with community farming, blending aspects of Barclay Farms' allotment style approach with Montview Farms' landscape gardening mentality.

Like Montview Farms, Willowdale Community Garden will make use of permaculture inspired, *swales.* Swale contours create undulation for water to fill and seep into horizontal crests.[16] These contours are often dug into existing slopes and help to slow and catch water that otherwise would run offsite. As future rainfall becomes increasingly more sporadic and intense in Cherry Hill with the onset of climate change, water retention efforts will become increasingly more important for the gardens and neighborhoods (Robinson, 2012). For the short-term, swales also allow gardeners the ability to plant a variety of niche-specific plants in a condensed area. Swales allow water-loving shrubs to be planted along their spongy concave troughs. They also support less water dependent shrubs and trees to be planted along upper crests of the swale. Trees and shrubs planted on top of the swale contour benefit from a consistent supply of ground water flowing slowly beneath the undulated landscape.

The second on-site permaculture design component is the creation of *forest gardens*. Forest gardens transform wooded areas into food producing landscapes by inter-planting food and timber producing trees and shrubs that thrive in semi-shaded environments. The edge of the

[16] See detail drawings of swales in appendix.

forest patches currently standing on the south, east, and north sides of the proposed garden site offer a unique garden opportunity for cultivating desirable trees species and berry bushes. Tree species such as cherry and black locust should be planted throughout the wooded area. Additionally, blueberries, raspberries, and blackberries should also be planted among the periphery of these wooded areas. The resulting forest garden will act as an on-going edible landscape experiment for gardeners and students to explore and enjoy over the coming years.

The last permaculture component of Willowdale Community Garden is the *keyhole garden*. Keyhole gardens allow gardeners to access a variety of plants in a condensed horseshoe shape[17]. Two keyhole gardens are proposed in my design and will consist of a dense inter-planting of perennial and annual crops modeled after the plants found in Bill Russell's home garden. These two gardens will help to maximize public garden yields in a limited amount of space. Most importantly, they will create attractive learning landscapes for classes and students to study while visiting Willowdale Community Garden.

[17] Keyhole Garden example drawing included in the appendix section

Figure 11 – *My Design for the Willowdale Community Garden Site*
Design aspects to observe:

- Located bottom center is an entrance to the fenced-in, swale-orchard section of the landscape.
- Behind swale section is the private allotment garden section displaying only eight plots. Actual design calls for a minimum of twenty, 10 x 10, raised bed plots.
- Beyond allotment plots is the first section of perennial-based permaculture learning landscapes. One of these landscapes will consist of entire native species. The other landscape will support annual vegetables modeled after the Russell's home garden.
- To the right of these landscapes will be a U-shaped planting of black walnut and hazelnut trees.
- Right of this section is the movable tool shed with attached rain barrel catchment.
- Right of this structure is the keyhole garden supporting a variety of wild flowers.
- Surrounding the entire site is beech forest that will sustain inter-planted berry bushes and the introduction of black locust saplings for future wood harvests. Native New Jersey species such as Shortleaf Pines, Sweet Crabapples, and Scarlet Oaks should also be reintroduced to the forest canopy.

Willowdale Community Garden is located approximately two miles west of Cherry Hill High School East. This proximity will allow teaches to coordinate class field trips to the garden. Gina Oh, Cherry Hill East's environmental science teacher, imagines bringing her classes to the garden during her double-period lab classes. Mrs. Oh recognizes the learning and hands-on lessons, her students will receive by analyzing, planting, weeding, and harvesting the garden landscape (Oh, 2012). She is excited to do what she can support the creation of Willowdale Community Garden.

The Potential for Learning Landscapes

The place-based education component of Willowdale Community Garden will allow me to participate as the garden's *environmental facilitator*. As environmental facilitator, I will lead lessons at the garden through experiential hands-on, garden-based learning. Lessons will be grounded in reconnecting students to the agricultural heritage and resources of their township. As well as the examining the etymology of the garden's landscape, students will also study native plant identification for the area (www.plantnative.org/rpl-denjny.htm). On days when site work is needed, students can lend their hands to speed up community garden projects. Discussions on permaculture and what a permanent culture means to students will also be integrated into on-site garden lessons.

In applying the permanent culture component, the majority of site lessons will return to the theme of re-imagining and creating local forward-thinking action in Cherry Hill Township. Students may find it difficult to understand why locally grown food is important to their current and future livelihoods as residents of the township. They may question whether oil is really running out and why this projection matters. They may also find it hard to believe that suburbia is a development trend in the on-going story of Cherry Hill's landscape. As the garden educator,

I will make students responsible for deciding what topics will be studied on-site. Students will be able to choose to focus on or discuss the following topics: *The History of Cherry Hill, General Gardening, Genuine Community Design Principles, Permaculture,* and *Future Post-Oil Communities.*

The discussion and examination of these proposed topics will help to satisfy three of the garden's *Intentions For Learning*. The first of these intentions is important is to create a strengthened student interest in their own community's history and identity. The second is instructing and supporting students in learning the basics of gardening and producing their own food. The last intention is to demonstrate to students how residents are capable of improving and enhancing the ecological health of their landscape through the practice of land stewardship.

Details for Private Allotment Plots

The place-based education component of the garden will also allow students to interact with neighborhood gardeners tending private allotment plots. The garden design proposal currently offers twenty private allotment garden plots. These plots are designed as raised wooden beds dimensioned at 10 x 10 feet. This small size allows plots to squeeze into the confined area located on the northeast section of the site (Figure 11). Similar to Barclay Farms Community Garden, a two-foot path will exist between each plot so that gardeners can move easily throughout their space. A seven-foot mesh fence will also surround the private garden space to keep deer, geese, and other animals outside of the allotment area. Garden members will pay $20.00 for use of their annual garden plot. Similar to Barclay Farms Community Garden, this cost will provide garden amenities and services such as annual mulch delivery, access to garden tools, and the opportunity to attend summer garden workshops.

Steps for Planning and Initiating Willowdale Community Garden

To better understand my personal involvement with implementing the community garden, I have outlined the following step-by-step implementation process modeled after the advice offered in *Montview Farms' Case Study Report*.

1. Develop a core team of community garden organizers.
2. Create a transparent community garden site planning process that involves and applies the input of neighbors.
3. Confirm neighborhood support for the final Willowdale Community Garden design.
4. Develop and confirm a place-based education partnership with local schools.
5. Obtain approval from Cherry Hill Township to carry forth, garden implementation.
6. Create garden volunteer and workshop schedule for opening garden season.
7. Advertise garden through local newspapers and social media.
8. Celebrate Willowdale Community Garden's first growing season!

1. The first step in the formation of Willowdale Garden is the creation of *a core garden volunteer team*. Lisa Depiano recommends that a garden organizer team should consist of at least three core volunteers. This team is intended to act as the backbone of the planning and garden implementation process, mustering and organizing volunteer support throughout the garden's development (Depiano, 2012). This team must also combine the right mix of individuals, bound together by a commitment to create a successful garden site for their neighborhood to enjoy and inherit. Lisa suggests that garden organizers commit a minimum involvement period of two years to garden implementation. This minimum time period is generally required to secure and advance the following six steps.

2. With a core group of volunteers established, the next step is discussing the garden vision with the surrounding community. One method for approaching this step is to hold a series of community potlucks that bring neighbors together around the topic of Willowdale Community Garden. Potlucks can accomplish a variety of objectives. They can offer a forum for neighbors and garden organizers to meet and form new connections. They can also introduce the topics of permaculture, place-based education, and future Cherry Hill for residents to openly discuss.[18] Other topics to consider for discussion at the potluck series may include potential funding options, feasible water sources, and tentative garden membership guidelines.[19]

3. Following these discussions, an active design process should emerge, offering a space for neighbors to express suggestions for Willowdale Community Garden. Neighbors who are opposed to the project should be encouraged to share their concerns during these design sessions. Hopefully, facilitating direct neighborhood involvement leads to growing neighborhood support for the proposed garden project. If it appears that neighbors do not support for the community garden proposal following the potluck series, the core volunteers will have to determine an alternative direction forward, adapting the garden proposal to better fit the needs and desires of the surrounding neighborhood.

4. If neighborhood support does develop around a finalized garden plan, the next planning step involves developing a place-based education partnership with the Cherry Hill School District. Sustainable Cherry Hill recognizes that teaching children environmentally friendly habits has the potential to mushroom into township-wide change. This is because students often indirectly teach their parents about the lessons they have learned at school (Sobel,

[18] Though *Sustainable Cherry Hill* held a community-envisioning event for creating a sustainable vision of future Cherry Hill in 2008, a potluck-envisioning event would focus on the question, "What do Willowdale residents envision their neighborhood looking like in ten years?"
[19] Membership guidelines will be modeled after Barclay Farms' *Memo of Agreement*

2006). Recently, Cherry Hill School District has displayed an interest in greening their schools.[20] Cherry Hill High School East is currently adding two new environmental science courses for freshman and senior students. Additionally, the *Cloud Institute for Sustainability* is in the process of a five-year project remodeling Cherry Hill's middle schools as incubators for sustainable initiatives and curriculum. Designing Willowdale Community Garden as a site for place-based education will expand the township's green curriculum to include outdoor learning.

5. After meeting with securing support from the township's schools, the next step should be receiving project approval from Cherry Hill Township. Providing evidence that both Willowdale neighborhood and Cherry Hill School District support the garden initiative will help in acquiring township approval for Willowdale Community Garden. The core garden team's primary objective in meeting with the township should be receiving a favorable land-use agreement to use the proposed site. This agreement should be modeled after Montview Farms' approach, offering township volunteer hours in exchange for land-use rights. The second priority in meeting with the township should be securing a long-term land-use deal for garden the site. This objective emerges from Lisa Depiano's advice to steer clear of short-term land-use agreements.[21] That said, securing any land-use agreement with Cherry Hill Township should be seen as a victory for the garden's progress.

It is promising to learn that Cherry Hill's recently appointed mayor appears to support the creation of new community gardens. In a recent interview with the new mayor, township land-use planner, Natalie Barney, discussed the importance of integrating new community gardens

[20] This interest is part of a larger national movement following the "Green Your Schools Challenge." (http://www.dosomething.org/green-your-school)

[21] Depiano and her fellow Montview Farms founders are in the process of renewing their land-use agreement from Northampton Township. Despite the success of Montview Farms, renewing this agreement has proven difficult to settle.

into a township-wide design plan. Natalie explained to the Mayor that she envisions community gardening playing a vital role in fostering community action and organization for Cherry Hill's future. Though Natalie did not provide any direct quotes from the mayor, her summary of the interview suggests that the mayor supports community garden initiatives. Learning about the mayor's "pro-garden stance" makes me hopeful that a favorable community gardening agreement can be negotiated with Cherry Hill Township.

6. Following the celebratory passage of such an agreement, the next step should be preparing the garden site for approaching growing season. This step involves reworking the site to include swales and other topographical changes. It also means gathering volunteers for sheet mulching crop-mobs, ordering seeds and shrubs for the creation of edible landscapes, and meeting with the design team to complete the *Willowdale Garden Workshop Schedule* (Figure 12). Upon completion, this workshop schedule will be posted on the garden's website and on the local garden bulletin board. Garden organizers should also begin coordinating place-based education site visits for the following school year.

Figure 12 - *Willowdale Garden Workshop Schedule*

Workshop Dates	*Event Title*	*Price*
May 1	Clean Up Day	Free
June 14	Rain Barrel Creation	$10 (Cover Materials)
June 21	Organic Gardening 101	$10 (Soil and Seeds Provided)
July 4	Celebrate Our Garden Independence!	Free
July 18	Community Garden Arts Day	Free*
August 1	Summer Garden School Starts	(TBD)
August 14	Community Garden Day	Free
August 28	Home Compost Creation	$10 (Cover Materials)
September 13	Willowdale Park Cleanup Day	Free

7. While garden volunteers are in the midst of preparing the garden site for its first functioning season, it will be important to advertise the newly emerging garden throughout the township and region. This step involves contacting local newspapers such as *The Cherry Hill Sun*, *The Courier Post*, and *The Philadelphia Inquire* to run articles outlining the garden's story, summer workshop, and long-term vision. Garden organizers should create Willowdale Community Garden Facebook and Twitter accounts for garden members to join and follow. Connecting through these social media servers will help to spread garden updates throughout the local community. The primary goal in advertising Willowdale Community Garden is to get people from the region and particularly from the Willowdale community excited about the future of their new community garden.

8. The last initiative requires celebrating the beginning of the first growing season at Willowdale Community Garden. With spring in the air, the garden should invite local neighbors, schools and organizations to celebrate Willowdale's first neighborhood garden. This event will be a momentous occasion for the township and local community. A locally sourced feast provided by nearby farms and restaurants will help kick off the approaching growing season. *Willowdale Garden's Celebration Event* should also be advertised throughout the township to maximize public turnout. This event will also represent the fulfillment of one of my personal life goals. Standing in my hometown with other neighbors eager for creating a sustainable future, I will experience the feeling of translating my global awareness and environmental studies major into local action.

DISCUSSION SECTION

> *"You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete." - Buckminster Fuller*

The country of Cuba has had a head start in the local food independency race. But this advantage has not come by choice. With the fall of the soviet control in 1989, Cuba experienced a steady supply of oil vanish overnight. What followed for the population was known as the "Special Years", a transition period when Cuba's government and people figured out how to survive with little or no oil (Power of Community, 2007). Overnight, agriculture changed dramatically. Lacking the heavy machinery to run these plots, agribusiness farms were purchased by the state and redistributed to the local population as small, organic, and human-powered farms. Without petroleum, pesticides and fertilizers also disappeared during this time (Power of Community, 2007).

Simultaneously, urban areas such as Havana were transformed into food growing cities. Small backyards and underutilized green spaces became food-producing landscapes. People who had never grown food before learned out of necessity to garden their own plots. In three years, Cuba went from producing largely export cash crops to growing a variety of fruits and veggies for their own population's consumption. The former national diet of pork, cassava, and rice transformed into a new plant-based diet. This diet change, paired with a rise in bike culture led to a healthier national population. The population learned that without oil, they experienced more free time and stronger community connection. This rise of personal well-being established a better relationship between the national population and its government (Power of Community, 2007).

Innovative community planners are beginning to look towards Cuba for cues on localizing America's communities. My literature review detailed the suggestions that planners like Douglas E. Morris, Wendell Berry, and J.Juuls have provided their readers. These suggestions all point to the importance of relearning human-powered traditions. Most forward thinking planners today are conceptualizing that while the end of oil will not happen overnight in the United States, the age of oil is coming to a close (Hopkins, 2006) The challenge then lies in planning a post oil society while oil-dependent systems and conveniences continue to function (Illich, 1974). As my thesis implies, planning for such a transition implies "a radical relocalization of the economy and every aspect of life."(Hopkins, 2006)

Although it will not happen overnight, it is interesting to note that Cherry Hill's food system will one day resemble the local food model of Cuba. The difference between Cuba and Cherry Hill is that the suburban community has the potential to largely dodge the "special years period" of resource collapse that defined Cuba's local movement. Americans have the privilege of gradually transitioning out of their oil-dependent systems. This does not mean that the transition will be simple. It also does not imply that communities and governments can continue stalling a commitment to smart design and sustainable development patterns. Rather, America's scenario suggests that communities like Cherry Hill have a unique opportunity to experiment with a variety of local growing techniques and collective living approaches prior to an oil shortage. While it is uncertain how long this unique opportunity will last, it provides communities with incentive to have fun with their local transition.

As Cherry Hill's township planner, Natalie Barney has observed that increasingly more township residents want to see their communities sensibly redesigned (Barney, 2012). In an

interview with Barney this spring, she explained how “sustainable community development is the long-term vision for Cherry Hill’s planners and government.” This vision is currently emerging through the master pedestrian and bike plan for the township, due for publication later this year (Figure 11). It is also reflected in a movement towards both in-fill housing and condensed commercial development plans that offer the promise of supporting more efficient alternative transportation systems in Cherry Hill.

Figure 11 – *Current Pedestrian Situation Along Rt. 70 in Cherry Hill*

Despite these promises of smartly planned development agenda, it is important to the success of Cherry Hill’s transition relies on marketing this movement to the community and more importantly, the individual. From my experience speaking with high school environmental studies students and various township residents this year, I have observed that the topics of climate change and peak oil are largely misunderstood in Cherry Hill. While this confusion is dissipating thanks to efforts of Sustainable Cherry Hill, the majority of Cherry Hill’s residents are only beginning to think about the impacts that their actions have on the environment (Braunstein, 2012) This majority tends to focus instead on satisfying their personal happiness. For this reason, it is important to persuade individuals to recognize that the transition approach to community development maximizes not only community and environmental health but also personal happiness (Thatcher Jr., 2003).

The desire to focus on transition initiatives like Willowdale Community Garden Cherry is also supported by a desire to seek alternative lifestyles that actively replace car-culture. Ivan Illich predicted 1974 that the “typical American male devotes more than 1,600 hours a year to

his car."(*Energy and Equity*) Since this calculation in 1976, it is fair to assume that average hours devoted to the car have increased. Thayer Jr. suggests that as negative lifestyle trends such as driving increase, citizens often become open to considering more alternative lifestyles (2012, 79). Few transportation alternatives or conveniently located downtown spaces exist today to get Cherry Hill residents out of their cars. This transportation limitation prevents public life and public places from developing in the township. Be it community gardening, the creation of downtown spaces, or the implementation of bike and pedestrian agendas, it is important to recognize that any sustainability movement depends on the creation of public or community spaces.

Barclay Community Garden's sixty-person wait list should act as an indicator to the township that residents are seeking conveniently located, community space. These spaces are needed for residents to create deeper connections to the people and places within their neighborhoods. Gardener's who could easily grow their own food behind the homes are opting for food growing experiences that connect them with skills workshops and a network of local gardeners. Warren Johnson describes that in any community, membership is important because it provides "prevents the loneliness of self-centered individualism."(1972, 114) Even though gardeners tend their own private allotment plots at Barclay Farms, they bond over a shared sense of experience that accompanies community gardening. This provides an integral dimension of civic livelihood within a landscape of single-family homes, an environment known to lack neighborly connection (Beauregard, 2008).

Unlike the necessary local revolution that has resulted from system collapse in Cuba, I foresee the transition movement arising as a voluntary effort to improve personal well-being in the American suburb. Unlike the residents of Cuba, suburban neighborhoods like Cherry Hill are

not collectively facing food security issues (Feed Northampton, 2010). The continuation of a stable food supply at the local supermarket undermines the possibility of a necessary local food revolution for the short-term in Cherry Hill. But as the findings from this thesis suggest, a growing awareness in planning for the inevitable (Hopkins, 2006), paired with an emerging interest in reinhabiting place (Thatcher Jr., 2003), may foster a voluntary township-wide movement to localize Cherry Hill's food and community systems prior to the collapse of petroleum society.

CONCLUSION

Most of the community planners referenced in this thesis share a mixture of optimism and pessimism regarding the unfolding story of suburbia. As the era of "post-peak oil" approaches, it is interesting to note the unintended benefits that will emerge from a suburban transition or system collapse. Tainter (1988) suggests that collapse of current systems may lead to a simplified approach to living locally. "Collapse", Tainter writes, "is recurrent in human history. It is global in its occurrence, and it affects the spectrum of societies from simple foragers to great empires."(26) As I have suggested in my discussion section, collapse or transition is inevitably in Cherry Hill.

In this thesis, I have used the terms "sustainability" and "localization" to imply nearly identical connotations. Similarly, I am suggesting that "collapse" and "transition" have strangely similar implications regarding the emergence of local systems. Expanding on this comparison, I believe the main difference between transition and collapse is temporal. In most instances, transition will happen before collapse. And since transition initiatives are inherently foreword thinking, the transition approach to localizing community systems has the ability to use oil to its advantage (Hopkins, 2006). Conversely, collapse will emerge from stalling on a local transition. In the collapse scenario, communities will find it difficult and expensive to secure the creation of alternative energy and food systems with a limited or non-existent oil supply. Communities in collapse must learn to make due with saved resources and existing renewable energy systems established prior to post-oil society (Kunstler, 2012).

The choice between transition and collapse also addresses the role that suburban communities play in reducing global climate change. One of the major drivers behind that

resiliency approach to planning is securing resources for future communities. This implies that transition initiatives working to increase a place's resiliency are inherently defensive in nature. However, local initiatives also work in decreasing a community's collective carbon footprint. The rise of suburban development and car-culture has worked to intensifying global climate change. I believe that suburban communities have a moral imperative to reduce their oil consumption prior to collapse.

It is difficult to conceptualize how today's habit of driving to the suburban grocery store directly affects the rate at which sea levels are rising and threatening the local coastal population of Papua New Guinea (*Sun Come Up, 2010*) Or how the transportation of today's internationally traded food destined for suburban communities is intensifying drought in Sudanese villages. But these habits are directly working to exacerbate already challenging climate conditions around the world. While this is not the message to preach in effectively localizing suburbia, it is important to remember that suburban citizens are also global citizens. As such citizens, it is there responsibility their responsibility to localize now.

My thesis offers additional examples individuals and organizations working to create a local movement for suburban residents to adopt and support. Be it Lori Braunstein and Sustainability Cherry Hill's efforts to spread environmental and health awareness to Cherry Hill residents or visionaries like Lisa Depiano working towards fortifying a local food movement in Northampton, Massachusetts, residents of suburban communities everywhere have already begun rethinking and redesigning their communities. My proposal for Willowdale Community Garden is intended to create more places local change to occur.

As I grow increasingly more confident in believing that community gardening holds the key to unlocking the most effective community-wide change in suburbia, I am excited to return

home to make my garden proposal a reality. The effectiveness of community gardening is supported by its cross-disciplinary nature. This thesis demonstrates how the topics of landscape history, localized community, nature connection, permaculture, and place-based education can all be applied to the action-oriented approach of community gardening. More importantly, applying this interdisciplinary perspective to community gardening helps in strengthen the potential community-wide benefits embedded in the project's unfolding.

Through the process of writing this thesis, I have realized that despite climate projections and natural resource predictions, no one is certain of what the future holds. The best thing that communities can do is to pragmatically plan community redesign around the most accurate, available, future predictions (Seidl, 2011). Charles Darwin wrote, "It is not the strongest of a species that survives, nor the most intelligent. It is the one that is most adaptable to change."(1859) In reconnecting the Willowdale community to a food-producing landscape, Willowdale Community Garden will work to rekindle a long-lost adaptation of the Cherry Hill area. Like the Native Americans, colonists, and farmers who previously inhabited Cherry Hill's landscape, the implementation of Willowdale Community Garden will facilitate a growing dependence on the land for the wisdom and resource to move community forward. Only through exploring this aspect of adaptation will Cherry Hill residents relearn how to well and locally, in place.

About the Author

Andrew Schlesinger has studied environmental studies and sustainable community development at *The University of Vermont (2012).* His education has allowed time for exploring and analyzing the pertinent topic of future communities. By combining knowledge from an array of courses including, *Community Design Studio, Permaculture* and *Finding a Sense of Place,* Andrew takes a multi-faceted approach to studying and examining the design challenges facing suburban communities today.

During his junior year of college, Andrew had the opportunity to study architecture and urban design in Copenhagen, Denmark, a city that has become synonymous with sustainable innovation. His experience abroad opened his eyes to a new career path in urban design. Returning to the states, he has translated his interest and experience in urban design into a growing desire to study suburban design. His plan is to create community-supporting infrastructure that supports the emergence of a post-oil culture. Andrew recognizes that his generation will be the first to inherit oil-dependent, suburban landscapes in an age with decreasing amounts of oil. As a long-term resident of one of these places, he feels a personal responsibility to work alongside other suburban community members in re-imagining, re-considering and smartly redeveloping functioning and lively future localities.

The path that Andrew will take in pursuing suburban design may prove circuitous. Like most successful landscape designers today, Andrew wishes to acquire skills in a variety of loosely connected trades. These trades may include architecture, natural and green building, community gardening, and environmental education. Andrew cannot perceive the order in which he will approach and learn these trades. However, he recognizes that to adequately approach the challenges of suburbia, one must combine an awareness of multiple issues and vocations. Only through this unique approach will the livable potentials of suburbia be fully identified and enacted.

APPENDIX SECTION

BARCLAY FARMSTEAD PLANT-A-PATCH PROGRAM

2012 MEMO OF UNDERSTANDING

It is hereby mutually agreed by the Gardener and the Township of Cherry Hill, that in consideration of a fee, the Gardener shall have use of an assigned plot(s) of ground under the terms and considerations set forth below:

A. The use of the plot by the Gardener will run from approximately mid-April through mid-October. *All non-organic material including, but not limited to, tools, stakes, strings and plastic materials must be removed by Gardeners no later than Sunday, October 14th. Failure to comply will result in forfeiture of plot(s) for following season.*
B. You must be actively gardening by May 15th. After that date, the Township reserves the right to forfeit, adopt and/or re-assign abandoned/unattended plots.
C. There must be a two-foot walkway to the right side of each plot. The walkway must be kept clear of any debris, tools, weeds or potholes.
D. The Township of Cherry Hill will have water available for gardening at the site, except when restricted by the State. *Watering will be limited for each Gardener to one hour per day and gardeners must be present when sprinklers are in use.* Please turn off the water at the main valve when not in use. Please report any leaks to the office.
E. All trash and debris is to be discarded in the appropriate receptacle. The Township of Cherry Hill will empty trash cans at the site on a regular basis. Your cooperation to minimize trash and keep the Farmstead property clean is greatly appreciated.
F. All cars and trucks at the Farmstead must be parked either on the roadway or in the parking lot. Vehicles are prohibited from driving or parking on the grass. Out of respect to our neighbors, gardeners are encouraged to park in the Farmstead parking lot and not on the adjacent residential streets.
G. Removing stakes with assigned names or changing the location of stakes is strictly prohibited. Requests for plot relocation must be received and approved by the office.
H. Hoses must remain in garden plots when not in use; any hoses left in the walkways, grassy areas or hanging on the fence will be confiscated.
I. Plows and/or rototillers are not to be used before 9 AM.
J. No insecticide may be used in the garden area as the Township has designated the Farmstead a "Pesticide Free Zone." No fertilizer or weed repellant should be used that in any way detrimentally affects adjacent garden areas. No pressure-treated wood of any kind is to be used in or around the garden area. Organic gardening is strongly encouraged.
K. Children are to be supervised at all times.
L. Dogs and other pets must be curbed and under control at all times.
M. Gardeners are asked to use sound judgment when choosing materials (fencing, sheeting, etc.) that are environmentally-friendly and fitting to the natural and historic landscape of the property; the Township reserves the right to restrict inappropriate materials. This includes, but is not necessarily limited to: construction/snow fencing and opaque landscape fabric.
N. Anyone found growing drug-producing plants will forfeit gardening privileges and be prosecuted to the fullest extent of the law.

Aerial Photo of Proposed Site for Willowdale Community Garden (Outlined in Red)

[Image removed from digital version; available in hard copy version housed in the Environmental Program office.]

Example of Permaculture Key Hole Garden

[Image removed from digital version; available in hard copy version housed in the Environmental Program office.]

Suburban Garden Case Study Photos

Montview Community Farm Photo

The Russell's Raised Bed Planters in their Home Garden

Barclay Farms Plant-A-Patch Community Garden Photo

Willowdale Community Garden Forest Garden Site

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